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ARTICLE I.

Alloying and Refining Gold for Dental Purposes.

By MINTERN J. BROWN, D.D.S.

Although the science of alloying and refining gold, may not be considered as exactly coming within the province of the dentist, but rather as belonging to the jeweler or goldsmith, still a knowledge of these, purposes in the course of almost every dentist's practice, will be found to be of practical value, and to one whose field of labor may lie beyond the scope of "Dental Depot" conveniences, almost if not wholly indispensable; so also with the system of reducing gold into plate, and of the manufacture of solder, they may be of little use to those who practice in large cities, procuring their plate of any required size and thickness, and solder of any degree of fineness, from the dental depots, and in return selling the scraps, clippings, filings, &c., but to those situated at a distance from the cities and dependent upon coin, or pure gold, for the material they may use, a knowledge of the system and of the appliances for carrying it into effect, are of the greatest importance. Although many substitutes for gold have been introduced, this article still holds the field against, and is superior to all competitors, for it possesses many properties which peculiarly adapt it to the purposes for which it is used in dentistry. Gold in its pure state is so soft and yielding, as to be seldom used by dentists in the labratory, it has therefore been found necessary to combine with it some other metal, or metals, that shall, while imparting to it the desired degree of strength, elasticity and hardness, not impair its malleability, pliancy and purity. This combining with it of other metals is called alloying; alloys in respect to their use being to all intent new metals possessing properties, and differing in many respects from the constituents of which they are composed.

The metals with which gold is most generally combined are silver and copper, and although it might seem from theory, that the purer metal, would be less likely to increase the liability of gold to tarnish, while the baser would impart to it a disagreeable metallic taste. Still this is not warranted by experience, or facts, and gold when alloyed with copper unless reduced entirely to much, is as capable of resisting the action of acids, and is as free from any disagreeable metallic taste, as when alloyed with silver, beside it renders it more susceptible of a high and beautiful finish. The effect of these two metals upon gold are in strong contrast, copper giving hardness and elasticity, and deepening the color into a red, while silver preserves the softness and gives a greenish tinge to the original color of the gold. Platinum is sometimes used for alloying gold, but owing to the affinity of the alloys for oxygen, it is readily acted upon by nitric acid, and the septic acids of the mouth will in most cases, in a short time, be apt to corrode or make the metal very brittle. The terms by which the fineness of an alloy is expressed, are, taking pure gold as a starting point, either unity, 11.24 or 1000. In the first the fineness is given in fractions, in the second by parts called carats, and in the third by decimals. The fineness of our American coin for instance, would be expressed in the first system by 9-10, indicating that it contains 1-10 alloy, and 9-10 pure gold ; in gold the second by 21.6, alloy 2 4-10 carats, pure gold 21 6-10 carats, and in the third by 800, sne hundred parts alloy, nine hundred pure gold. Gold alloys to be permanently worn in the mouth, should be sufficiently pure to resist, under all circumstances, any chemical change that might affect the health or comfort of the wearer. If the health of the wearer were uniformly the same, and the secretions of the mouth always in their normal condition, gold of a very low carat might be used and undergo no material change, but beside the corrosive agents constantly being taken into the mouth, the fluids of the mouth, otherwise innoxious, are rendered more or less acidulated by a variety of diseases. Evils of no small degree may be inflicted by the use of debased gold, even if the use of gold of a low standard of fineness were accompanied by no evil results, and it should not be used, as it becomes discolored by the buccal secretions of the mouth, imparts a disagreeable taste, and when worn a few years becomes brittle. Gold therefore to be permanently worn in the mouth, should seldom or never be of a less degree of fineness than nineteen carats, and in some cases it should exceed this in purity. When gold of an unknown fineness is to be converted into plate, it should be refined first, and afterwards properly alloyed. This will not be necessary in using coin of a known standard. The refining of gold, or separating from it foreign metals with which it may be contaminated, is performed either by what is designated as the "dry method" or the "humid." Acknowledge of these methods is of the greatest importance to the dentist, as in the laboratory it is impossible to prevent gold from becoming mixed with other metals, as platinum, silver, solder, steel from files, and lead and zinc from dies and counter dies. The refining of gold by what is termed the "dry method," is effected by the action of either oxygen, chlorine or sulphur on the base metals which the gold may contain, converting them into oxides, chlorides or sulphurets. The refining agents generally exployed for this purpose, are nitrate of potassa, which yields oxygen; chloride of mercury, which yields chlorine, and sulphuret of antimony, which yields sulphur; other compounds contain these elements, but those already mentioned, are generally preferred, as they contain them in abundance, are readily decomposed by heat, and do not materially interfere with the process of separation by adding troublesome components to the alloy. The manner of refining by this method is first to remove all traces of iron and steel from the fragments and filings, to be refined, by passing a magnet through them several times, then to place them in a clean crucible, coated on the inside with borax, cover with a piece of crucible or fire-clay slab, then place in a furnace on a bed of charcoal; small portions of borax may first be added, and when the metals are reduced to a fluid state, the refining agents are to be introduced, from time to time, in small quantities It is a matter of no small discrimination to determine what re agent should be employed. If, for example, zinc is present in a small quantity, nitrate of potassa should be used, which yielding oxygen that has a great affinity for this metal, readily effects its separation by converting it into an oxide but when tin is present, the act of decomposition is better effected with chloride of mercury, or some other compound that parts with chlorine. The washing should be continued from half an hour to an hour, according as the alloy is coarse or fine, the crucible may then be removed from the fire and allowed to cool gradually, after which it may be broken, and the button of gold removed and seperated from the stag that surrounds it. But if, as is generally the case, the alloy contains several metals having distinct affinities, or is of an uncertain composition, this process will have to be repeated several times, first with one refining agent, and then with another, and becomes to a considerable extent necessarily experimental. For reducing an alloy to pure gold by what is termed the "humid process," the solvents commonly used are nitric, sulphuric, and nitro-muriatic or hydro-chloric acids. In this process, the alloy is first dissolved in one of the above mentioned acids, and as the desired effect is more readily and directly obtained by the latter or hydro-chloric acid, this is generally made use of. This converts all the metals into chlorides, the chloride of silver being insoluble, and having a greater specific gravity than the liquid, will settle in the bottom of the vessel in the form of a grayish powder, the chlorides of the other metals being soluble will remain held in solution; by washing and pouring off, after the chloride of silver has had time to settle to the bottom, the solution may be readily separated from it; the proto sulphate of iron (common green copperas) is then used to precipitate the gold, while the other metals still remain in solution. There are various other agents beside proto-sulphate of iron, which may be used for this purpose, but this is generally employed, being in all respects equal to the others, while being cheaper and more readily obtained; the copperas is dissolved in pure rain water, and should be filtered and permitted to stand until perfectly clear, it is then to be added to the gold solution gradually. So long as a precipitate is formed, this precipitate of gold will be a brownish powder; this should be permitted to settle to the bottom of the vessel, where it may be washed after pouring off the solution. This precipitate may contain traces of iron which may be removed by digesting it in dilute sulphuric acid, and the result, if all has been properly performed, will be pure gold. To form gold into plates suitable for dental purposes, the first thing to be done is to reduce it into the form of an ingot, this is done by placing the gold properly alloyed in a clean crucible lined with borax, and perfectly fusing it in a furnace, it is then poured into an ingot mould of iron, or charcoal, if the mould be of iron it should be oiled or coated on the inside with lampblack by holding it over the flame of an oil lamp, or gas; yet, before the metal is poured, it often becomes necessary to break up and remelt an ingot several times, as it not unfrequently occurs that in pouring, the metals arrange themselves in the ingot according to their different specific gravities, those of greater density passing to the bottom, while the higher remain at the top. The next step is to reduce the ingot somewhat in thickness by placing it on some hard surface, as the face of an anvil, and subjecting it to repeated blows with a moderately sized hammer. During the process of forging, the piece should be frequently annealed by bringing it to a full red heat ; this should be continued until the piece is reduced to about half its original thickness. The process of rednction is now continued by passing the ingot between the highly polished rollers of a mill used for this purpose, the rollers being brought a little nearer together each time the metal is passed between them, and the pieces being frequently annealed ; by this means it will be spread out into a sheet of greater or less thickness. Should the piece either in hammering or rolling, crack, it must be remelted and a few pieces of borax with a little muriate of ammonia thrown in. As regards the thinness of these plates, no prescribed rule can be given that will answer in all cases, as certain conditions of the mouth require modifications in this respect; usually, however, plates for entire upper sets should correspond in thickness to No. 26 guage, and for the lower to No. 24, and for partial sets to an intermediate number. Plates for clasps or stays should correspond with 20 or 22, unless the alloy.has a small quantity of platinum, when a less amount of substance is required.

The process for making plate to be used for stays and clasps, is exactly similar to that already described : first, re ducing the alloy to an ingot, and then by hammering and rolling into plate. From frequent annealing the plate will become oxydized, this may be readily removed by placing it in dilute sulphuric acid.

Solder is an alloy by which several pieces of the same or different metals are united ; necessarily they must fuse at a point below the metals to be joined, and should be composed of such ingredients as possess a strong affinity for the substance to be united, and they should also be as fine as the materials to which they are applied will admit of.

Gold solder is made by the combination in specified proportions of gold, silver, copper, and sometimes zinc and brass. The metals employed in making gold solder, if they are not pure, should be separately refined; unless this is done it will be difficult if not impossible to ascertain their relative purity, which of course must be known to secure the desired effect. The method of making solder is, first, to melt the gold in a clean crucible, with a little borax and copper. If zinc or brass are to enter into the composition of the solder, it should be added last, after the other ingredients have become thoroughly melted, the whole rapidly stirred for a moment and immediately poured into an ingot mould. A piece of charcoal will be found more convenient, and will answer better for making a small quantity of solder than a crucible. Solder containing a grain or two of zinc will flow at a low temperature, and have a fine gold color, but it is apt to impart to the mouth a brassy taste, and also to become brittle after long use, and is apt, as is also solder containing brass, to be so stiff and even brittle, as to be with difficulty hammered or rolled, and the difficulty is increased by its low fusing point, rendering it almost impossible to anneal without melting it. The process of reducing solder into plate, is performed in a manner precisely similar to that already described for reducing gold alloy into plate for base for artificial teeth, clasps, stays &c. The plate should be formed somewhat thinner than a plate for an entire upper dentures.

In the different works on "Dental Surgery" and "Mechanical Dentistry," are given many receipts for the manufacture of solders that are said to work well and flow smoothly, but almost every dentist who manufactures his own solder, has a formula of his own, which, in his opinion, at least, is superior to all others. The greatest difficulty in the use of solder, generally occurs from a wrong method of soldering, and not from any defect in the solder.

ARTICLE II.

Cleft Palate.

By William J. Fogle, D. D. S.

Among the many cases I have met with in my practice, perhaps I can find none more interesting than one of cleft palate, which I treated successfully some years ago. It was not one of those extreme, aggravated cases in which an inter-maxillary bone had been formed and left suspended from the vomer, by the failure of the long formation from the anterior part to unite with the main body of the superior maxillary, and accompanied by hare lip; nor was the velum pendulum involved; but there was simply a fissure beginning a line or two behind the incisor teeth and extending along the median line to a point opposite the second molar teeth; this fissure was fully one-third of an inch wide or probably a little wider at the largest part. The teeth in this case were, with few exceptions, good, and had every indication of belonging to those of the first class, though through neglect, imprudence and inattention on the part of the patient, some few of them were much decayed. The patient—a lady of about 30 years of age—objected to the surgical operation of staphyloraphy, and as some of the teeth were so much decayed as to render extraction necessary, I deemed the first operation useless, inasmuch as the plate could be made to serve the double purpose of sustaining the artificial teeth, and also closing the defect in the palate. The patient stated that she experienced much inconvenience from the malformation of the mouth, both during mastication and also in conversation.

After I had removed the decayed teeth and brought the mucous membrane to a normal condition, I took an impression of the mouth in wax; this material copied the various parts and markings with so much accuracy that I was enabled to study the many parts of interest presented, at my leisure. After careful examination I determined to obliterate all traces of the fissure from the model, and to place the teeth upon a gold plate, the retention of which should be aided by two small air chambers ; these I made in the form of a crescent and placed one on either side of the fissure so that the points should be opposite each other. The teeth, two central incisors. a first bicuspid on the right, and a second bicuspid on the left, were arranged in the usual manner and the plate inserted. It was very gratifying to find that the plate gave entire satisfaction, the patient having, as it were, been brought in a moment from affliction to perfect health and comfort.

In regard to taking the impression with wax, I must say that if I had possessed at the time a sufficient knowledge of plaster as an impression material, I would have preferred its use, for the reason that I would have found less difficulty with it than in the case of the wax, although with this latter material I succeeded very well.

I could also have dispensed with the air chambers, by having a roughened surface on the plate instead, which is easily accomplished by passing a fine gauze wire on the plate through the rollers. The gauze used for this purpose may be of brass, steel or iron. This plan I adopt altogether whether I use the clasp or not, and I find that it answers an admirable purpose. In many cases of partial pieces where clasps would otherwise be required, experience teaches me that by this process the plate adheres so firmly to the mouth, that there is not the slightest necessity for the use of the clasp. On this point all will agree with me who try this plan and do their work in a proper manner ; and unless the work is done well and a good adaptation secured, it had better not be done at all. While referring to clasps, I will take occasion to say, with all due respect to those who use them, that I do not think that clasps should be employed in any case where their use can possibly be avoided. It matters not how well they may be adapted to the teeth, or how fine the material of which they are composed, they have a tendency to injure the teeth to a greater or less degree in every case where they are employed.

ARTICLE III.

Proceedings of Georgia State Dental Association.

By R. A. McDonald, D. D. S., Cor. Secretary.

This Association met on the fifth day of April 1871, in Augusta, the President, Dr F. Y. Clark, of Savannah Ga., in the chair.

The Secretary Dr. S. C. Ford, of Atlanta, Ga., being absent, Mr. Samuel Hape, of Atlanta, Ga., was appointed by the Chair to act as Secretary, *pro tem.*

The following members present answered to their names:

Drs. W. H. Burr, Madison, Ga.; J. P. H. Brown, Augusta, Ga.; E. Parsons, Savannah, Ga.; H. A. Lowrance, Athens, Ga.; A. M. Postley, Savannah, Ga.; F. Y. Clark, Savannah Ga.; E. M. Allen, Marietta, Ga.; S. G. Holland, Agusta, Ga.; Thomas J. Jones, Sparta, Ga.; R. A. McDonald, Griffin, Ga. Drs. S. J. Cobb, of Nashville, Tenn., and G. McDonald, of Aiken, S. C., were elected honorary and corresponding members, and Drs. M. D. Jobson, of Perry, Ga.; S. Wright, of Augusta Ga., H. F. Camfield, and A. F. Bignon, Augusta, Ga., regular members. Dr. E. Parsons, Chairman of the Committee on Physiology, Dental Histology, Surgery and Chemistry, read a very interesting and able paper on the subject of Dental Histology and Chemistry, with some very interesting facts in connection with the early history, rise and progress of Dentistry. The report was discussed by Drs. F. Y. Clark, S. J. Cobb, of Nashville, and J.P.H. Brown, of Augusta.

Quite a lengthy discussion was entered into as to the cause of caries and its prevention, participated in by Drs. Clark, Parsons, Cobb and Brown.

Dr. S. McDonald of Aiken, S.C., spoke on the subject of operative dentistry. He had been in the practice of dentistry some forty years. At the time he commenced practicing, great difficulty was experienced in obtaining suitable instruments. A *blacksmith* was his instrument manufacturer. The Doctor stated that some instruments invented by himself at that early stage of his professional career, were still in use, and had been adopted as standard patterns. Gold plate was his favorite *base* for artificial dentures. Has had no experience in the use of heavy foils. Prefers gold foil to any other preparation of that metal for filling teeth. The treatment of alveolar abscesses was also discussed. Dr. McDonald used caustic potash, and treated the teeth by an application to apex by penetrating the seat of the abscess externally.

Dr. Parsons also spoke of the difficulties experienced by the early practitioners of dentistry in getting suitable instruments, &c.; difficult operations were not attempted; extraction was resorted to where there was any difficulty in filling a tooth. He thinks that amalgam filling is increasing, and that this material is often used where gold would be decidedly better; thinks however, that amalgam can be used to great advantage in some cases. Dr Parsons here presented an instrument for using amalgam to the State society. It is in the form of a *spatula* of silver. The affinity between silver and mercury enables the operator to carry any desired quantity to the cavity, and take up any particle that may accidentally drop in the mouth while packing; conceived the idea and made the first instrument in August 1870. An interesting specimen of exostosis was here presented by Dr. Parsons. The tooth was extracted some two months since; a lady had been treated for facial neuralgia by her physician for four months without any beneficial results; found great difficulty in extracting the tooth with forceps; finally succeeded with an excavator.

Dr. McDonald called the attention of those present to his inferior incisors which had been separated in 1824 by a dentist in New Orleans.

Dr. E. M. Allen alluded to a subject that had not been treated of, viz: the examination of very small cavities in the fissures of the molar teeth. Had a recent case where a patient had been dismissed by her dentist, who assured her that her teeth needed no attention, and Dr. A. filled nine cavities, upon a thorough examination.—Advises great care in the examination of this class of cavities. He has used sesqui-chloride chromium in cases of very sensitive teeth with beneficial results. Dr. Parsons has used caustic potash with success. Dr. J. P. H. Brown has very little faith in remedies of this kind. He would recommend a very sharp instrument, accompanied with moral influences and suasion. Dr. Allen would like to know if this moral influence can be brought to bear upon all patients. Dr. Brown thinks not; but in many it can.

Dr. F. Y. Clark spoke on the subject of heavy foils; thinks that heavy foil can be used in almost every sort of cavity; can get from one-third to one-fourth more foil in a cavity than with lighter numbers. Also alluded to the use of oxychloride of zinc for capping nerves. It can be used in a very thin state by flouring over the exposed nerves with good results. The prejudice against the use of this material is not as strong as when first introduced; thinks caustic potash should be used with great caution; believes in sharp instruments and moral suasion; when something must be used to destroy sensitiveness, uses oxychloride of zinc.

Dr. Thos. J. Jones, Chairman of the Committee on Mechanical Dentistry, made a verbal report that it is the unanimous opinion of the committee that gold work is in a large majority of cases superior to all other styles of work now in use, and though the first cost is more, that it is the cheapest in the end, and free from many of the objections attending the use of vulcanite work, which is susceptible of many abuses and is too frequently palmed of on persons who have no means of discriminating between the different styles of work.

Specimens of improved impression cups were presented by Dr. G. McDonald, of Aiken, S. C., and, on motion, a vote of thanks was extended and a committee appointed to investigate and report at the next annual meeting.

The following standing Committees were appointed:

Physiology, Histology and Chemistry—Dr. A. C. Ford, Atlanta; Dr. D. S. Wright, Augusta; Dr. A. M. Postley, Savannah.

Operative Dentistry—Dr. F. Y. Clarke, Savannah; Dr. A. F. Bignon, Augusta; Dr. M. S. Jobson, Perry, Ga.

Mechanical Dentistry—Dr. T. J. Jones, Sparta; Dr. E. S. Billups, Atlanta; Dr. M. H. Thomas, Monroe.

Dental Education and Literature—Dr. J. P. H. Brown, Augusta; Dr. E. M. Allen, Marietta; Dr. H. T. Camfield, Augusta.

The Committee on Information for the People then made their report. The article was read, and, on motion, was received, and after some slight alterations, adopted. The Executive Committee was authorized to have 15,000 copies printed, each dentist to pay the expenses of printing for the number of copies purchased.

The following resolutions were adopted successively:

Resolved, That a committee of——— be appointed to regulate prices for dental operations. [And after being' read and discussed referred to executive committee.]

Resolved, That the secretary be directed to furnish the various dental journals with a copy of the proceedings of this meeting.

Resolved, That the secretary furnish every dentist in this State with a copy of the By Laws and Constitution of this Society.

Resolved, That the Corresponding Secretary be directed to confer with the *American Journal of Dental Science* as to printing the essays and reports of committees of this Society, and report at our next meeting.

On motion the following delegates were appointed to the Southern Dental Convention, meeting in Charleston, S. C:

Drs. H. T. Camfield, W. E. Spears, D. S. Wright, A. F. Bignon, J. P. H. Brown, S. Hape, S. G. Holland, F. Y. Clarke, W. H. Burr, M. S. Jobson, H. A. Lowrance.

It was moved and adopted that a committee be appointed to make arrangements for the next meeting, Drs. Ford, Carpenter and Hape, were appointed as the committee.

On motion, the next place of meeting was decided to be Atlanta, Ga. and the time of our next annual meeting to be the first Wednesday in April, 1872, 10 o'clock A. M.

The following resolution was unanimously adopted:

Resolved, That a vote of thanks be tendered to the Faculty of the Augusta Medical College, members of the Press, Hotels, various railroads centering in Augusta, proprietors of the Masonic Hall, and the dental profession of Augusta, for kindness shown and courtesies extended to the Society.

No further business claiming the attention of the Association, the meeting adjourned.

ARTICLE IV.

Alabama Dental Association.

The Alabama Dental Association met at Selma, the President, J. G. McAuley, in the chair. The increased attendnce shows a growing interest in the association.

Dr. J. G. McAuley, of Selma, was elected delegate to represent the interests of the Association at the next meeting of the American Dental Association. Dr. Sam'l Rambo and J. W. Keys, of Montgomery, alternates.

Dr. W. J. Reese, of Montgomery, was elected delegate to represent the interests of the same at the next meeting of the Southern Dental Association, at Charleston. Dr. Wm. Deason, of Mobile, alternate.

The following officers were elected for the ensuing year: *President*, Sam'l. Rambo, Montgomery; *1st Vice President*, Wm. Deason, Mobile; *2nd Vice President*, J. W. Keys, Montgomery; *Cor. Sec*, W. J. Reese, Montgomery; *Rec. Sec.* and *Treas.*, Robt. A. Savage, Mobile.

The next meeting of the Association will be held in Mobile, on the 16th of August 1871.

Robt. A. Savage,
Sec. Ala. Dental Association.

SELECTED ARTICLES.

ARTICLE V.

Case of Triple Fracture of the Lower Jaw.

By T. Curtis Smith, M. D.

On the 5th of Sept., 1865, I was called to see Mr. G., æt. 69; farmer; healthy; of steady good habits, and considering his age, robust. Six days previous to my first visit, while grinding cane, the lever to which the horse was attached caught against the left side of his head, on a line corresponding with the inferior margin of the jaw and point of the mastoid process of the temporal bone. The right side of his head was carried against the sharp corner of the solid frame work of the grinder, on a line corresponding exactly with the one on the left side. As the lever passed over his head, it produced fracture of the inferior maxilla at the symphysis, and a fracture in each lateral half, about eight lines anterior to the angles of the jaw. It also tore off the left ear and the integument and fascia to the margin of the calvaria. It was seen the same day by a physician in good standing, and of many years experience, who pronounced it a fatal injury, he diagnosing "fracture of the skull." Left it without treatment of any description. Hence, the long period—six days—that elapsed before any treatment was instituted. I cleansed the wound, drew down the integument, and ordered free and frequent applications of cold water to it. Found the jaw fractured as above described, but not in the least displaced. It retained its natural situation, the fragments being in perfect apposition as long as he did not talk or attempt to eat. I put on a dressing to steady the fragments—Barton's dressing,—but it was painful and heating, the temperature of the atmosphere being very high. He would not allow it to remain. Perfect union of fragments occurred without the slightest deformity, and practically without the sign of a dressing. At the symphysis it was not solid until after four months, but near the lateral angles solid union had taken place in six weeks. He was kept on slops and fluid diet for the first eight weeks. I report the case on account of its being a triple fracture, and not recognizable by any deformity as long as the mouth was kept closed; but more especially on account of such ready union without any apparatus and without deformity, and that too in an individual 69 years of age. The other injuries healed kindly, leaving off, of course, the whole external left ear, but not injuring the hearing.

Our authorities report some cases of double and triple fractures of the lower jaw. Hamilton reports eleven cases of double and triple fractures. Of these, three were triple fractures, two of them resembling my own case. He also reports the case of an "Irish laborer" æt. 17 years, who was thrown from a wagon, breaking the inferior maxilla on both sides through the body, and also, exactly in the centre, vertically between the central incisors." With this case he seem to have had great difficulty in securing and retaining the fragments in perfect apposition. He also mentions a case recorded by Howzelot, "in which a fall from a height produced at the same time, a fracture of both condyles, of both coronoid processes, and of the symphysis," making five fractures in the same maxilla. In my case the symphasis fracture was vertical, the two lateral oblique. The fragments were evidently held in apposition by the muscular attachment[illegible]ng such as to balance the fragments equally.—*Med. and [illegible]g. Reporter.*

ARTICLE VI.

Caries and Necrosis.

The four cases sitting before you are all instances of a destructive inflammation of the maxillary bones, resulting in the death of a portion of their substance—they are instances of caries and necrosis. Now what is necrosis? Caries in bone is analagous to ulceration in tissues; necrosis, to mortification. One is degenerating, slight in degree and limited in extent; the other extensive and complete. They are both the result of inflammation, an ostitis which may be provoked in various ways, but is very commonly, in the maxillary bones, the result of the periodontitis. Ostitis does not, of course, always end in caries and necrosis, any more than does inflammation in the soft parts end in ulceration, yet in certain conditions, especially in struma, such a result may occur.

Caries of the maxillary bones, especially of the lower, is comparitively rare; yet these cases will occasionally come to our notice. I have spoken to you of alveolar abscess as a cause, and you see how often I bring up this subject in my lectures, to impress it more forcibly upon your minds, that it is a disease which is extremely common. Look at this skull, which I hold in my hand; all along this alveolar process, just against the extremities of the fangs of the teeth, you will see little openings, which appear as though the bone had been perforated ; and so it has, but not by an instrument. These openings are all the result of alveolar abscesses, and I have no doubt that many of you have precisely similar ones in your jaws.

Remember, then, to pay particular attention to these periodontal troubles, and do not let your patients suffer from either caries or necrosis, with their accompanying sinus-riddled faces, the scars of which will ever remind you of your ignorance or culpable neglect.

Caries may arise occasionally directly from ostitis, the result of injury, but periodontitis is much more commonly the first recognizable symptom as well as the cause, and should be combatted in its acute stage, as shown in my previous lecture—Reporter July 30th, 1870,—since, by a failure to thus vigorously treat it, I have seen extreme complications occur.

But suppose, as often happens, that you have not been called to the case until all this mischief has been done; you will then find the patient somewhat like this little girl:

Case I.—Who, as you will see the orifice of a sinus discharging pus, at the base of her jaw. The parts about, are red, indurated and excoriated, and she tells me that she has been in this condition for months. Her trouble, she informs me, and as I anticipated, commenced in a tooth ache, and this sinus soon followed. I pass the probe, and what do I feel? Bone, not smooth and covered with periosteum, but soft, riddled, easily broken down—very much like old honeycomb. Now, I know that this is not now simply an uncomplicated alveolar abscess. I am sure that in its progress the inflammation extended to the bone structure and caries has been the result.

This little girl is pale and delicate, presenting those general appearances which we call strumous, and this circumstance has unoubtedly been largely instrumental in bringing about this unfortunate state of things. When will the day come, gentlemen, when you and I shall be able to speak intelligently of this taint "scrofula;" to define its meaning—to discover its cause—to trace its course—and best of all to grapple with and overpower it. I cannot stop here to discuss the question as to the consanguinity of the conditions, syphilis, scrofula, tubercle, etc., but much we well know, that the loose, spongy structure of the bones of strumous patients as evidenced in the frequent diseases of the bones about the joints, predisposes to the condition of caries whenever local or other causes shall lend their assistance. Of course I speak in a general way, for not every scofulous patient will have caries, while many a strong, robust person may be so affected. Constitutional causes are certainly far more powerful in the production of this disease than are local injuries; for injuries are common, while cases of caries are comparatively rare.

The slowness or rapidity of this disease are greatly influenced by various individual conditions, being, for instance, quite rapid during the process of dentition, as also in mercurially weakened ones it seems almost but a simple mechanical disintegration; while at other times it seems to but a semi-fatty degeneration, the animal portion of the bone becoming quite soft and greasy.

Many contend that tubercle is present in any and all points of the manifestation of caries; but although as I have already said, such a relationship often does exist, as in the girl before us, yet it is not always present.

Now, I do dot think that the disease is very extensive in the case we are now considering, yet it is impossible to determine that question precisely, since there is no abrupt line of demarcation, as in necrosis, but rather a gradual fading or shading out of the diseased into the healthy structure.

Having, then, a case of caries, we proceed to treat it. This one has now passed the acute inflammatory stage, so that cathartics, diaphoretics, leeches, etc., would be only productive of injury. We have therefore, to treat it in its chronicity, and this we shall do by iron, quinia, beef, cod liver oil, etc., together with a local stimulating injection, consisting of tinct. iod. and tinct. capsic. comp. thrown in once in two or three days, which will assist in the rapidity of the cure. This will be our course for a short time, while we carefully watch whether nature be herself competent, with this assistance, to repair the difficulty, but failing in this we shall then cut down through the track of the fistula and remove all the diseased bone. The tooth-roots, the original cause, have already been removed, so that we have now no inconvenience from that source.

In removing the diseased bone we always use the chisel, and with this instrument you will soon acquire the delicacy of touch that will enable you to detect the instant that healthy bone is reached, by its hard, springy character, while carious bone is soft and brittle, and presents to the sight a dark, deadish-white, or oleaginous appearance, instead of being white and vascular.

All the softened bone should be removed, and the hemorrhage will seldom be severe. Simple alum-water is sufficient, as a general thing, for its control, even, indeed, if this is required. Such will be our treatment, and you shall watch the case with me, and thus know the result.

Case II.—This old woman, 65 years of age, has been suffering for months from a continued discharge of pus into her mouth and from a tumor in the roof of that cavity, which has been variously diagnosed, and is giving her much alarm. As you look into her mouth you see this tumor projecting from the roof, and occupying nearly the whole of the right side, being of the size of the largest pea-nut shell. The gums are red and swollen, and pus is exuding from about the necks of numerous decayed fangs which occupy the upper jaw. The tumor itself is hard, yet, upon firm pressure, it yields, and I am sure that it contains pus, a fact which I easily make apparent to you by this exploring needle.

This trouble has existed for over a year, and evidently has its history the usual one of alveolar abscess; but this abscess, from some cause, did nôt break into the mouth, as it should have done, but the pus took a direction inward, along the palatal plate of the superior maxilla, and is now pointing here. It has also done more than work along this bone. It has set up an ostitis, which has been followed by death of the part, and now we have quite extensive necrosis. I pass a bistoury into this tumor, and you see the instant discharge of pus, which is horribly offensive, characteristic in odor of necrosis. The probe shows the bone to be denuded and dead feeling like a piece of hard wood, or like lead.

Now the cause of all this trouble is evidently situated in these old fangs, some six or eight in number, and all of these we shall remove, thus not only ridding ourselves of their further prejudicial effect, but also giving more free exit to the pus.

Having removed all these teeth, we will wait for a little time to allow the turgid, congested condition of the gums and surrounding parts to subside, that we may be the better able to judge of the progress of the case. Yet, I am sure that the dead portion, called a sequestrum, has not yet separated, and that we must wait a little time until nature shall have cast off this foreign mass, which she will do by forming a line of demarcation between the diseased and healthy structures. Must we wait entirely, however, for this slow and tedious process? Yes, we cannot hasten it greatly; yet there is a means which has been proposed by Mr. Pollock in these cases concerning which, however, I have not had sufficient experience to speak with certainty. We will try it in this case, however, and test its merits.

This treatment consists in the injection of sulphuric acid, mixed with six quarts of water, into the parts; the operation to be repeated every day. The acid sulph. arom. may also be used in its full strength. The dressing should consist of tannic acid ʒ ij, glycerin ʒ j, M. Ft. pasta. It is claimed that the cure is expedited, and much more satisfactory results obtained, by thus dissolving out the inorganic constituents of this bone. just as you have seen done by your anatomists.

Now, necrosis of the superior maxillary bones is far less common than that of the inferior; and although it is more liable to take on a general inflammation, yet its higher vascularity and susceptibility enables it to resist the destructive action and limit the part overwhelmed, so that it is seldom affected in its entirety. In this case before us I judge that a large portion of the right palatal plate and of the alveolar process will separate.

Sometimes the necrosis only affects the alveolar border by itself, being in such cases often the result of a local irritant, other than an inflammation of the alveolar-dental periosteum, as for instance from the use of arsenic, chloride of zinc, etc., in destroying the pulp of teeth, such paste has oozed down around the necks of the teeth, and developed a severe inflammation, ending in the death of the process; limited however in extent, and in its duration, four weeks being sufficient for its separation.

The separation of a bone slough in any position is a long and tedious process, requiring patience in the surgeon, and unlimited faith on the part of the patient, especially as during all the time the case may seem—superficially viewed—to be steadily growing worse. It will often be fortunate for your reputation if these cases do not reach you until the sequestrum has been already separated, and is lying cooped up by the tissues—that is provided you cannot have seen them in the first stage,—since few patients have the resolute deextermination and abiding faith to resist the constant discouragement of appearances, and friends who will clamor that "something shall be done," and I have usually found it true that those who know the least, advise the most.

We must always pay careful attention to the building up and supporting the constitution of the affected person, or repair and separation will not go on. We will administer the best of tonics and food to this old woman.

When it is seen that death of the body of a bone is certain, especially in the inf. max., it will be found of all advantage to endeavor to have the dying bone replaced by new structure, just as new bone is formed around a necrosed tibia. To accomplish this, I slowly enucleate the periosteum—the bone forming structure—by means of small tents of cotton or sponge introduced between it and the dying bone, which by their expansion slowly strip it away, thus hastening the death of the old part and retaining the valuable periosteum. In this we can sometimes, but not always envelop the old bone with the new growth, and thus prevent deformity. When the periosteum is indisposed to form such new bone, it may be favorably stimulated by tinct. iodine, with a small addition of creosote, especial attention being given at the same time to cleanliness and disinfection. Weak injection of potass. permang., two or three grains to ℥j of water will answer nicely.

Even should these fail and the progress be slow and tedious, do not let your impatience overcome your better judgment, but continue to wait, for I have found from experience that all operative interference in cases of maxillary necrosis is only productive of harm, and especially is this true of phosphor-necrosis, of which I shall speak to you upon some future occasion.

Case III.—This woman presents a pouting, red teat-like prominence beneath the base of the lower jaw, with an opening in its centre which is so characteristic that any one of you would at once say that there was dead bone beneath. From this teat is a constant flow of pus, and although my probe passing through the sinus reveals dead bone, yet it is not a detached sequestrum and we must here also wait for the separation of the slough.

It is somewhat singular, notwithstanding the immense amount of material applying at this clinic, that is should so often happen that a number of almost similar cases should be found upon a single day; yet this is often the case, as you have frequently the occasion to notice both in my service and in that of Prof. Agnew. Upon a previous occasion I showed you a number of cases of necrosis in all of which the sequestra had already separated, and were removed by cutting down upon them either in the line of the sinus, or through the jaws; yet in the cases to-day not one of them is ready for operation.

Case IV.—Here is also a case of necrosis of long standing, which is not due to alveolar abscess, as were all the preceeding ones, but to the fracture of the jaw inflicted some five years since. The fragments united, but a portion of the bone died, and was finally removed by operation; yet this did not cure her trouble, for from some unknown cause, portions of bone still continued to necrose, and keep up a constant discharge. Several fragments have been removed at various times, and she presents numerous scars along the base of her jaw, but there is yet bone to come away, and we can only hasten it by the occasional use of the stimulating injection of which I have spoken.

One important part of the treatment, however, we must not neglect. This constant tendency to death of the bone shows that there is a constitutional fault lying behind this disease, and, if I mistake not her appearance, she is tainted with that dire disease, syphilis. Now, shall we dose her with the routinist's iodide of potash and corrosive sublimate? She is pallid, feeble and anæmic to the extreme, and such a course would but still further reduce her already poor blood. No, let us try to give her good red corpuscles, and thus the nutrient material being rich, produce healthy action in the bone and give nature the mastery. I think, then, that the syr. ferri iodid. will be far better for present condition, which, it is alterative, is also tonic in its action. We will commence with ten drops ter die, and increase to fifteen if the stomach is tolerant, and it would not be amiss to add a few drops of liq. potass. arsenitis to each dose.

Of course her hygienic circumstances are unfavorable, yet we will try to place her in the most favorable condition possible, and order as good food as her circumstances will permit. Cod-liver oil will add greatly to her nutrition; in fact, in this weak, feeble state of syphilitic necrosis, I may say that it is a far better "specific" than is potass. iodid. With these measures I trust that we shall be able to limit this unhealthy action, and compel it to be cast off leaving behind a healthy bone.

Case III. will be treated with the same stimulating injection.—*Prof. Garretson's Clinic in Uuiv. of Pa., Reported by Dr. Willard in Med. and Surg. Reporter.*

ARTICLE VII.

On the Preparation of Chloral.

Extracted from the remarks of Dr. E. R. Squibb, before the American Pharmaceutical Association.

Chloral is the ultimate product of the action of chlorine on alcohol, as its name implies, the first syllables of the two words being formed into the name: "chlor," the syllable of chlorine, and "al," the first syllable of alcohol, making "chloral." When chlorine gas in a dry state is passed into absolute alcohol, a series of changes appear to take place, which may depend on the abstraction of hydrogen and the substitution of chlorine. The first portions of chlorine gas that pass into absolute alcohol are converted, or appear to be converted, at once into hydrochloric acid, and that hydrochloric acid is absorbed by the remainder of the alcohol, and reacts with it, producing hydrochloric ether. The second step in the reaction is to again decompose or supersaturate this hydrochloric ether with chlorine, and then hydrochloric acid escapes and a substitution appears to take place, whereby chlorine is substituted for hydrogen in the already decomposed alcohol. This is but a rude outline of the process. Chloral was discovered by Liebig in 1829 or 1830, although the paper in which it was described was not published until about 1832, therefore it is commonly stated that he discovered it in 1832, which is incorrect. Dumas was the next who investigated it, and these two observers investigated it as a table specimen product. Last year, Dr. Otto Liebreich, in his physiological investigations regarding the group of anæsthetic chemicals, reasoned back to this substance the known effects of chloroform, and tried it first upon animals, then upon patients. At first he supposed it was an anæsthetic, but afterwards modified this view, and now I believe regards it as a hypnotic, and, in some cases, an anodyne. The apparatus for making chloral consists, first, in the means of generating chlorine ; second, in the means of drying the chlorine ; third, in the means of passing it into absolute alcohol without loss ; and, fourth, having the absolute alcohol in such a position that it can be gradually warmed. The process requires about twenty-eight days for the current of chlorine to be passed into the absolute alcohol, and I believe the slower the current passes into the absolute alcohol the better ; that is to say, the longer the time which is taken to produce the chloral the better ; I think there is less waste and more chloral obtained for the same quantity of alcohol. It is a curious circumstance that hydrate of chloral is produced by passing the chlorine into absolute alcohol, and this shows that water is one of the results of the decomposition of the alcohol ; yet if hydrated alcohol be used, the product is different. I have tried different degrees of strength of alcohol, from absolute down to ninety-two per cent., and have obtained good results only from absolute alcohol. 16 gallons of such alcohol, in twenty-eight days, with the use of about a ton and a quarter of mixture of binoxide of manganese and common salt, and about the same quantity of sulphuric acid,—the 16 gallons of absolute alcohol weighing abut 92 pounds—I obtained about 160 pounds of crude hydrate of chloral. This crude hydrate of chloral, as it is made by the passage of the chlorine into the alcohol, is contaminated with several other products which pass over in the distillation, and cannot be separated by simple distillation. It is necessary, therefore to apply sulphuric acid in the purification of the chloral. Concentrated sulphuric acid is shaken with the crude hydrate of chloral, and the dehydrated chloral is then distilled off from the sulphuric acid. In this way we get chloral that is free from water. After purifying this by one or two applications of sulphuric acid, then the stœchiometric proportion of water is added, and it is either sublimed or crystallized. In connection with this hydrature allow me to go back to the name of chloral. I propose to call it simply chloral,—not hydrate of chloral, nor chloral hydrate. It seems to me surplusage, as we do not in our language commonly call hydrated compounds hydrates; that is, we do not usually recognize the presence of combined water in the names of chemical compounds.

We do not say hydrate of sulphuric acid, or hydrate of hydrochloric acid, and in this case we shall save a good deal of nomenclature that is useless by calling it simply chloral. We heard yesterday, that the bees by taking a little honey from each flower gathered thirty millions of pounds. Every flower and every bee helps to make the aggregate. A certain amount of nervous force is expended on every word we utter, and we save this word now (and now is the time to start), it will save an aggregate of nervous force which, in the future, will amount to a great many lives. I don't believe in useless langauge, particularly where it can so well be avoided, and therefore, think we had better call this from the beginning, simply chloral, although the other name is pretty generally used.*

The difficulties in the way of making chloral are very numerous. The apparatus I have now at work is about the tenth modification from the first one, and I started with all the knowledge on the subject then in the books. The liberation of chlorine from common salt and black oxide of manganese by running acid sulphuric into it is easy enough, but unless the current be steady the result is imperfect, and there can be no good or definite calculations made as to the time or the quantity. The black oxide of manganese and common salt need both to be assayed and added together in their equivalent proportion, and then the calculated amount of sulphuric acid in any given specimen is to be made upon its specific gravity, and acid can only be added to the mixture by calculation, because, if added until chlorine ceases to be eliminated a great excess will be used. I mix 100 pounds of the mixture of black oxide of manganese and common salt with about ten gallons of water in a still, and then run seven gallons of 60° slowly into it, using "pan acid," 1,562 specific gravity, using a mechanical stirrer, and heating the mixture. In this a tolerably uniform current of chlorine is eliminated. This is then conducted to the drying apparatus, which consists of a three-neck Woulfe's bottle, with a long, narrow glass percolator ground into the middle neck. This percolator is filled with pieces of broken glass from which the fine particles have been sifted out, and into the top of this broken glass, concentrated sulphuric acid is supplied from an elevated reservoir. This acid percolates through the broken glass, and accumulates in the Woulfe's bottle below until it reaches the level of an adjusted syphon, by which it is dicharged through one of the necks of the bottle. Thus the gas is made first to bubble through the acid in the bottle, and then to pass over the extended surface of broken glass in the tall percolator, this surface being kept moistened with fresh portions of acid, and thus becomes thoroughly dried and in the proper condition to enter the alcohol. The chlorine thus passed down into the alcohol at first increases the volume of alcohol by one-fourth. At first, the whole of the bubbles of gas are absorbed, and the alcohol increases in volume and becomes heated, the bottle requiring to be kept cold; but after about three days the reaction between the chlorine and alcohol becomes more sluggish, and then a little heat in the bath is necessary. From that time the bath is made gradually warmer until the end of the process, which is determined by the gas pressing unchanged through hot liquid in the bottles. The product is then the crude hydrate of chloral. Then if the contents of the bottles be allowed to cool a large proportion crystallizes. It will run from one part of the bottle to another, but still is very moist. This is taken in portions of about twenty pounds at a time and shaken up with six to eight pounds of sulphuric acid, the whole mixture poured into a tubulated retort and the chloral distilled off. This is received in a clean, dry vessel, is weighed, and then partially hydrated with a weighed quantity of water. Carbonate of lime and slacked lime are then added in the proportion of four ounces to each twenty pounds, and the mixture is again distilled from a clean apparatus. The result of the distillation now is partially hydrated chloral; it distils better partially hydrated than when hydrated entirely. The remainder of the water required by stœchiometrical calculation is now added, and the hot liquid poured on plates to crystallize, the plates being covered by bell glass. In a few hours the crystallization is complete, and if well managed the contents of the plates is in a solid cake, which is rubbed into a coarse, damp powder in a clean mortar, and filled into bottles.

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*While this note is being prepared for publication a serious mistake by abbreviating the words Hydrate of Chloral "Hyd. Chlor." in prescription, was corrected in time to avoid danger.—E. R S.

I obtained from 16 gallons of absolute alcohol, 160 pounds of crude chloral, which, when purified, yielded in the neighborhood of 125 pounds of purified hydrate of chloral. That is about the best yield I have had. I have now about 65 gallons in process all the time, by a series of baths, by which I expect to get 140 pounds, or thereabouts, every week, or every ten days'; that is, each bath being of a different age, and being finished in about thirty days, will give one bath or process every ten days. It will thus be seen that it is not a very profitable preparation to make, particularly when made in competition with the German article, and I believe I should never have undertaken to make it, except for my conviction that it is the most important of all the additions to the materia medica for many years past, and very commonly sent to our market from abroad of very bad quality, and without any traceable responsibility in regard to quality or make.

Some accidents of an apparently trivial nature seemed to indicate that chloral is very liable to decomposition from contact with organic matter, but experiments have shown that it is not equally liable to this decomposition from all kinds of organic matter. Even the same kind of organic matter does not always produce the same effect with the same chloral. For example, where syrup of orange-peel is used as a vehicle, decomposition, with the production of hydrochloric acid, will sometimes commence in a day or two, and sometimes not for weeks, though the apparent conditions be the same. One observer will testify that with simple syrup it never spoils or decomposes, while another equally trustworthy, will find the same chloral decompose with simple syrup very promptly. Under such circumstances, the only safe practice is to keep chloral as free as possible from all organic matter until we know more about it; and this particularly in view of the harm it does when given in even a partially decomposed solution. It appears to be by far the best practice to dispense it in simple watery solution in glass-stopped vials, since in this condition it keeps indefinitely, and can be added to any desired vehicle at the time of taking. And ice-water appears to be about as good a vehicle for this, as for all saline substances, as any yet devised. When given to patients who have been long fasting it is often found to disagree with them, or at best to affect them less favorably than when given near a meal, or when the gastric secretions are not in the condition of long fasting. Hence, the syrup of orange-peel, or the mucilage, &c., with which it is common to give it, may not be without useful effect, and those physicians who have now abandoned these mixtures for the simple solution, often if not generally, advise their patients to eat a cracker, or take some other light food in small quantity, before or immediately after an hypnotic dose. When the medicine affects persons unfavorably, it should always be examined for hydrochloric acid by smelling and tasting, and by litmus paper. Nitrate of silver is too sensitive a test, for if the solution has been some time made, and especially when water containing organic matter is used, a cloudiness may be produced with this test which it is quite safe to disregard.—*The Pharmacist.*

ARTICLE VIII.

Quick Method of Making Dies.

By J. A. Troutman, Toronto.

I first take an impression of the mouth and make a model the same as for vulcanite, then take a flask—the same as is used for vulcanite—and drill three or four holes through the bottom; fill the lower part of the flask partially with sand, a little damp; put some sand on the inside of the model, and press or drive the model firmly in the flask, then press the sand around the outside of the model, not allowing it to come up any further than the impression did; brush around the model, and then insert a sharp instrument through the holes in the bottom of the flask to allow the steam to pass out, then lift out the model and replace any sand that might be removed by the drawing of the model, then set the upper part or ring of the model firmly to its place and pour in the metal and allow it to cool. Then remove the ring, take out the model, attend to any defects that may arise from pouring the metal, set the cast on a bench, model upward, pin a slip of thick brown paper around the cast, pour the lead inside of the paper—the paper is strong enough to hold the lead without the support of sand—remove the paper and the cast and die are complete.

By this method the difficult casts can be made with the use of about a handful of sand, and with much less labor than by the ordinary method.—*Canada Journal of Dental Science.*

ARTICLE IX.

Excision of Inferior Maxillary Nerve.

The patient now before you has been suffering for nearly three years with a most intense neuralgia of the right side of his face and jaws. He states that he never experienced any difficulty until the three years back (some time after the close of the war, through which he passed), but that since that time he has been living such a life of pain as to render existence almost unendurable.

As to the cause of this difficulty, I regret to say that I am unable to give you a positive explanation. In a previous lecture I told you that a cause always existed, and that we could not discover it did not prove its absence, but merely our ignorance; yet such ignorance is often excusable, since this cause may be beyond present human knowledge. I have examined this man thoroughly, and have failed to find any special recognizable factor. His upper and lower denture are perfect, and after the most rigid scrutiny I am unable to find any of the nine or ten favoring conditions of neuro-odontalgia, which I then mentioned. There is no tenderness or even peculiarity of sensation afforded by any of the teeth; therefore, although these organs are so very frequently connected with this difficulty, yet in the present instance such does not appear to be the case, neither can he be suffering from the form of neuralgia resulting from the pressure upon the nerves of the alveolar process in edentulous persons from contraction and absorption, for he has all his teeth. We must, therefore, continue our investigations to other parts, and seek there an explanation by "reflex irritation."

First in order, of course, would be the other branches of this same fifth nerve; and here we find, as I have already said, no difficulty with the upper teeth; neither can we discover any tumour, wound, cicatrix or lesion upon any of the other branches which would seem to be a factor in its production.

We must then go still further yet, and examine other nerves which might reflect an irritation upon this one, and prominent among such are the branches of the cervical and brachiæ plexus, which in some cases would seem to possess a special and exceptional communication with the fifth, attributable only to a congenital or acquired peculiarity of organization. It has been found in several cases that a wound of the ulnar nerve was sufficient to cause reflex neuralgia in the fifth; and if this be true, why may not other nerves reflect their irritation in a similar manner? We have passed over and thoroughly examined every organ and portion of this man's body, reviewing every observation and fact which might enlighten us, but all has been without success, so far as the discovery of any exciting cause is concerned. We must, therefore, acknowledge the fact that we are unable to discover the special cause; yet from the expression, so to speak, of the case, I am confident that the point of irritation, though there is no tenderness in any place, is upon the inferior maxillary branch of the fifth pair, and that this point is situated somewhere in the lower jaw, anterior to the posterior dental foramen, and in the canal. Granting that such is the case, then, what could be more rational than to disconnect the point of irritation and the central point taking cognizance of such irritation—to sever the wire leading to the central office and thus prevent the transmission of any disturbing condition? To accomplish this we must make a section of the nerve at some point in its course, which is, as you know, from the ganglion of GASSER, out of the oval foramen, through the spheno-maxillary fossa, into the posterior dental foramen, through the canal and out upon the face at the mental foramen.

Now, the point of emergence from the foramen ovale, just at the optic ganglion would, perhaps, be the most effectual point; but this is deeply situated, and the dangers of the operation would be very great from the close proximity of so many important structures, the most dangerous of which would be the internal maxillary and carotid arteries. This then being impracticable, we select some point in the dental canal where it can be easily reached by simply removing the external bony palate, and in the present instance, as we wish to be certain of operating behind the irritated portion, we will go back almost to the dental foramen. Of course, such an operation should not be attempted until every means has failed, and until we are perfectly satisfied that there is no patent reason which can be otherwise removed. Again would I caution you to study well each case, and remember that over-study, venereal excess, indigestion, malaria, non-aeration of the blood, grief, tobacco, noxious gases, etc., etc., may all act as depressions of the vital economy either by over-stimulation or by under nutrition, and thus assist in the production of a continued neuralgia.

Again, moreover, all medical means should be tried to assist the removal of any lesion which may be discovered as the existing cause, yet should this be unrecognizable, we can only treat upon general principles, acknowledging our our weakness. "What then are the medical means?" you may ask, and in reply I can only recommend a few scores of drugs which have been lauded for neuralgia.

The general condition of the health should first receive our attention, since we shall often find neuralgia coexisting with anæmia, a condition which is often, in fact, the direct cause of the pains. Dr. Handfield Jones has long advocated the opinion that nerve pain is invariably, and in all its phases and consequences, an expression of debility of function. In these cases, and in nearly all neuralgic cases, much benefit will be derived from the exhibition of tinct. ferri chlor. gtt. xv ad xx t. d., either alone, or better in combination with quin. sulph. gr. ij. A solid preparation of iron may be used with the same companion in pill form, with strychniæ sulph gr. 1–40 advantageously added to it.

By this building and strengthening the constitution the exciting cause, debility, may be removed and cessation of pain be the result. The anti-neuralgic remedies which have for their object the soothing and quieting of pain, either by being addressed to the system at large, or to the local affected part, are almost innumerable, and every practitioner has his favorite. A combination of quinine, conium and aconite is a most excellent anti-neuralgic, as is also potass. brom. in 20 grain doses four times a day, or zinc. valerianat, in doses of ½ to one grain t. d.

A continued course of arsenic or liq. hydr. iod. et arsen, will often be of benefit.

During the paroxysms morphia and ether are our chief reliance, together with hot mustard plasters, or hot sand or salt bags to the affected part. A broken local application of ether, by means of a sponge will often change the condition of the nerve currents, and pain will cease.

The hypodermic injection of atropiæ gr. 1–30 to 1–60, persistently continued for several weeks, is often of the most marked advantage, and the same may be said of morphia, though the latter is not so properly curative in its action.

Creasote is a good local obtunder in the strength of gtt.v to ℥j. of lard. Acenitia and veratria are also used locally in ointments, but the two articles which will probably give the greatest relief are atropia and morphia, administered subcutaneously.

Should all means fail, however, and our minds become satisfied that there exists an otherwise irremedial condition in the nerve substance, external to the proposed line of section, we are justified in performing such an operation, even though it must be confessed that the results of such interferance are not always as satisfactory as might be wished. In order to reach this nerve in the canal we must cut down through the masseter muscle, and carefully avoid all important structures. Let us look at the anatomy. Here is the facial artery, crossing the border of the jaw, just in front of the edge of this masseter muscle, and running toward the oral angle. It must not be cut, and I will fix its position by an expedient which should always be adopted by young surgeons, *i. e.*, mapping out the lines with ink. Above is the duct of STENO, extending from the lobe of the ear to the second molar tooth of the upper jaw, and we will also mark its course. Again, upon the outside I mark the outline of the parotid gland, a structure which must escape injury if possible, since salivary fistula is apt to follow.

Here, then, are three lines—the boundaries of a triangle, and having them constantly before us we can cut without fear, so long as our knife does not reach them. In the present instance we desire to go far back into the canal, and consequently we shall be obliged to divide a portion of the masseter muscle; but even this will not give us any uncontrollable hemorrhage.

The incision (which must extend down to the bone), will be somewhat semi-circular in order to allow the flap to turn back without difficulty; then, when the periosteum is divided, a trephine will be applied in order to remove this bony plate, when the cavity will be exposed and the nerve uninjured if care has been used. Then, separating the nerve from the veins and artery, a half inch or more may be removed, after which the flaps are only loosely laid in position, that healing may be facilitated while free drainage is also secured. In regard to the separation of the nerve from its accompaniments, it is sometimes possible, but even the cutting of the other structures will not produce hemorrhage sufficient to require more than a plug of lint.

[Operation then performed as described, and a portion of the nerve removed without difficulty. The hemorrhage easily controlled and simple warm water dressing used. The man had no pain for twenty-four hours, but it then returned, the paroxysms being quite frequent and severe for nearly ten days, though not so acute in character as before the operation, he being able to remain comfortable by the use of forty minims of Magendie's solution, hyperdermically per diem, while formerly he was obliged to use eighty.

This continuance was not, however, looked upon as foreshadowing the failure of the operation, since it could not be expected that a nerve so long irritated, and in such an excited condition, would regain a state of tranquility at once any more than would a rough sea for days after the storm had ceased.

Of course this delay was extremely discouraging to the patient, but at the end of two weeks the attacks slowly diminished in frequency and force, until the twinges were scarcely perceptible, and at the present time, seven weeks from the performance of the operation, he writes that he is "*entirely* free from all pain, and can use his jaws as well as ever, without exciting any discomfort."

In regard, gentlemen, to the real and permanent benefit to be derived from this serious operation I can only refer you to the literature upon the subject, and from this I feel assured that it is well worth a trial in these persistent cases, since many recoveries have undoubtedly occurred.

This inferior dental nerve is the one most easily reached, but the superior maxillary has also been several times the seat of a similar operation. In the Cincinnati *Lancet and Observer*, Aug. 1869, a case is recorded by Dr. MURRAY, in which the inferior was divided in the canal, and the superior as far back as the foramen rotundum, behind the ganglion of MECKEL.

There are several of these excision cases reported in the *American Journal of Medical Sciences*, Jan., 1868; also one in July, 1869, in which latter case not only was the inferior nerve removed from the entire extent of the canal, but the superior also, as far back as the foramen rotundum, behind the ganglion of Meckel. This case was successful for sixteen months at least, up to the time of the report, which must have been a godsend to one who had endured untold agonies for eleven years; and I trust that a similarly happy result will occur in the patient who has just been carried from this room, since a continuance of his present condition would seem almost an impossibility, and his mind has certainly already suffered by the extreme severity of these paroxysms, which have scarcely left him five minutes of continuous sleep during the twenty-four hours.

I trust that we shall not be obliged in this case to excise the superior maxillary nerve, for that becomes a much more serious operation; still, it has been successfully done in a number of instances, and when necessary, it is best accomplished by the operation of CARNOCHAN, which consists in trephining the anterior wall of the antrum, breaking up the osseous walls of the infra-orbital canal piercing and breaking through the posterior antral wall, and cutting off the nerve just as it has emerged from the round foramen. In this operation he insists that the spheno-palatine ganglion shall be removed, since, being composed of gray or vesicular matter, it is a generator of nerve power. His operation is certainly far more simple and safe than one of LINHART, reported in the *Viertel-Jahrscrift fur die Practishe Heilkunde*, t. II., 1860, in which MIDDLEDORFF's powerful galvano-caustic apparatus was employed. He reports that as the cauterizing current passed backward it instantaneously destroyed every structure in the spheno maxillary fossa, and an immediate gush of blood from the injured internal maxillary artery filled the orbit and all the surrounding tissues. The carotid was not tied, but hemostatic pledgets failing to arrest the hemorrhage, the actual cautery was at last applied, which is a complication no surgeon would court.

There is another case reported by NUSSBAUM, of Munich, in Gurer's "Progress of Surgery," 1863-65, Berlin, which will certainly carry off the palm, if such it be, for "heroic" treatment. This woman submitted to various sections of the supra and infra-orbital nerves, for a period of five years, "but finding no relief," the report continues, "repeated extirpations of the cicatrices were made, the common carotid tied, the ascending ramus of the lower jaw trephined, and the inferior dental nerve exsected together with the mylohyoid and lingualis, causing necrosis of the bone, which had to be removed to the articulation. Five months later the neuralgia returned, when the infra-orbital nerve was exsected nearly to the foramen rotundum. This was followed by an osteo-plastic resection of the upper part of the sup. max. bone, but saving the alveolar process, as in LANGENBECK'S operation. The bones were then replaced and united by first intention. The pain had entirely ceased up to the time of publication, several months after the operation.

These cases are certainly formidable, but our own American reports are, perhaps, the most favorable ones published, and certainly, lead us to hope for many favorable results, especially when we read other opinions, as referred to in the above reports from "Brauns' Surgery," Tubingen, 1859, under "Kau and Geschmachs Organs," and p. 838, erst band. CARMICHAEL calls attention to the fact that the nerves are often enlarged and thickened in these cases of inveterate neuralgia, and a case is recorded in my book upon Oral Surgery, p. 442, where the antral nerves were of the size of knitting needles, and were removed from the antrum.

In conclusion, then, gentleman, let me sum up by saying that although, as remarked by DR. ANSTIE, the subject is "an uninviting one," yet that it is an operation eminently proper, when all other means have failed, and that it promises a reasonable hope of success.—*Prof. Garretson's Clinic, in University of Pennsylvania. Reported by Dr. Willard, in Medical and Surgical Reporter.*

ARTICLE X.

Neuralgia of Jaw following Tooth Extraction; Treatment by Prof. Gross' Method.

In the number of the *American Journal of the Medical Sbiences*, for July, 1870, is a description by Professor Gross, of a form of neuralgia of the jaw-bones, following tooth extraction, and depending as he thinks, on compression of the alveolar nerves by the osseous material deposited during the reparative process. The following is an example of the affection.

Solomon K., aged 18, had for some weeks been attending as an out-patient at the Leeds Infirmary, on account of excruciating pain in the lower jaw. Six months ago, the left lower anterior bicuspid tooth was removed in a state of decay. In from a week to ten days afterwards, he began to suffer intense pain in the part, and occasionally a little blood oozed from the gum. He sought relief from many sources, but in vain; and during his attendance as an out patient at the infirmary, the usual anti-neuralgic remedies had been prescribed to no purpose. The affected gum was hard, and adherent to the bone; and pressure upon it aggravated the pain, which though chiefly felt where the tooth had been, radiated to a considerable distance around. After having seen Dr. Gross' statement, Mr. Jessup admitted the young man; and, on October 20th, he cut down upon and removed with bone-forceps and gouge a portion of the alveolar border. The relief was complete, and continued up to October 29th, on which day he was discharged. He has not since been seen.—*British Medical Journal*,.

MONTHLY SUMMARY.

Carbolic Acid Preparations.—Mr. T. A. Baldwin, in a paper read before the British Pharmaceutical Conference, gives the following as advisable proportions in the use of carbolic acid:

As a rule it is better to dissolve the crystallized carbolic acid in the proportion of one part by weight of the acid to six of glycerine (carbolate of glycerine). In this state it can be diluted equally indefinitely.

In general, a dose of carbolic acid is one grain in an ounce of water.

As a gargle, 1 or 2 grains to an ounce af water.

As an injection 1 grain to 4 ounces of water.

As a lotion, 15 grains to an ounce of water.

As an ointment, 30 grains to an ounce of benzoated lard.

As a liniment, 1 grain to 20 ounces of olive oil.

As a plaster, 1 part of carbolic acid to 3 of shellac.

The crystallized carbolic acid to be used as a caustic.

The carbolate of glycerine, as above should be used in 1 or 2 drop doses.

Antiseptic oil for abscesses, 1 part of acid to 4 of boiled linseed oil.

Antiseptic putty, 6 spoonsful of the antiseptic oil mixed with common whiting.

Aqueous solution of carbolic acid is 1 part acid to 40 of water (1 ounce of acid to a quart of hot water, well agitated and filtered.)

Sick rooms to disinfect: place a portion of the dissolved acid in a porcelain dish, and float it in a larger vessel of hot water.

Disinfecting purposes generally: 1 pound of *crystals* to 6 gallons of water. *Fluid*, 1 part to 80 of water. *Powder*, 1 ounce of crystals with 4 pounds of slaked lime.

For drains: take 1 pound of the fluid carbolic acid to 5 gallons of warm water.

Tooth-ache is often cured with 1 drop of carbolate of glycerine; and diarrhœa arrested in half an hour with 2 drops.

In all case of parasitic life, it is advisable to commence with very dilute carbolate of glycerine.—*Chemist and Druggist.*

The Oil of Peppermint as an Anæsthetic—Dr. I. J. O'Brien writes to the *Druggists' Circular*:

I see by your February number, that a correspondent of the *Lancet*, while in China, discovered the fact that the natives of that antediluvian region, when suffering from facial neuralgia or tic douloureux, applied with success the oil of peppermint as an alleviative or antidote.

Without journeying to a section of the earth so remote from this division of the globe in pursuit of anagogetical authority, I became aware of the fact several years since, in the course of my practice, that the oil of peppermint possessed palliative and anæsthetic properties eminently befitting it as a valuable adjunct to my medicinal cabinet of neuralgic curatives.

Alternating creosote as a styptic with the oil of pepermint as a sedative, I have been remarkably successful in the treatment of abscess of the maxillary sinus—alveolar abscess and necrosis of the alveoli—after removing the cause, generally ulcerated teeth or fangs, and, as a consequence, necrosed bone.

In such cases I have always adopted the positive of the antiphlogistic treatment—dispersed inflammation with the astringent heat of the creosote, and dispelled all painful consequences through the anæsthetical agency of the oil of peppermint.

California Qnicksilver.—The total annual supply of quicksilver from California is not far from 50,000 flasks, or about 3,000,000 pounds. This is used in metallurgy, and in manufacturing and art processes. The largest quantity is used by the gold miners in the amalgamating process at the various mines. A considerable amount is used by manufacturing chemists in preparing calomel, "blue pill," mercurial ointment, and various mercurial salts and plasters. The Chinese make from quicksilver that beautiful pigment "vermillion" which is so largely employed by painters in all parts of the world. It is singular that the Chinese are able to prepare a chemical compound from quicksilver which is superior to, and which commands a higher price than the same salt produced in Europe and the United States, where the arts are carried to the highest perfection. English and American vermillion, as found in the market, is far inferior in brilliancy and quality to that of the Chinese.—*Am. Artisan.*

Mixing Plaster for Impressions.—Treating Discoloured Teeth.—H. G. KENNETH, L.D.S. says: I have been in the laboratories of many of my *confreres*, and have never seen any of them mix their plaster of paris for impressions as I do, and I flatter myself that I get the best models I have ever seen, not a bubble or a flaw. For plaster impressions of the mouth my plan of mixing is the very best, and will cause the plaster to set immediately. I simply put it and the water in a wedgwood mortar, and grind them rapidly until sufficiently incorporated. I think we save much annoyance and loss of time by making use of such little hints. I have tried many things for bleaching discoloured teeth; have succeeded with some; failed with mostly all. Some are too caustic, others too easily deliquesced and their moral effects neutralized.

In all cases of discoloration which I can have under my control, I thoroughly remove every particle of decay, dead pulp, &c., and take chloride of lime 1 part; oxy-chloride of zinc 1 part, mix as usual with the fluid of the latter, and fill the cavity, renewing several times in the course of a month. The chloride of lime must be fresh and have been kept close corked. I was indebted to a friend a long time ago for this simple method of treatment. It has served my purpose very nicely several times.—*Canada Journal of Dental Science.*

To Polish Marble, etc.—Marble of any kind, alabaster, any hard stone, or glass, may be repolished by rubbing it with a linen cloth dressed with oxide of tin—sold under the name of putty powder. For this purpose a couple or more folds of linen should be fastened tight over a piece of wood, flat or otherwise, according to the size of the stone. To repolish a mantel piece it should first be perfectly cleaned. This is best done by making a paste of lime, soda, and water, well wetting the marble, and applying the paste. Then let it remain for a day or so keeping it moist during the interval. When this paste has been removed the polishing may begin. Chips in the marble should be rubbed out first with emery and water. At every stage of polishing the linen and putty powder must be kept constantly wet. Glass such as jewellers' show counter cases, which become scratched, may be polished in the same way.—*Druggists Circular.*

Hydrate of Chloral.—It appears to be generally admitted now that the use of the newly discovered hydrate of chloral, unless by the advice of a competent physician, is liable to lead to seriously injurious results; but it does not follow that the drug may not be of great benefit as a remedial agent to skilful hands. An opium eater writes to the *Chicago Tribune* that for many years he had made every possible effort to free himself from the habit, efforts that were seconded by all the aids that medical science could give, but that they had all failed from one cause, the total inability to sleep after leaving off opium. In the hydrate of chloral he found the desired relief. Until he had completely abandoned the opium he did not meddle with it; even then he used it merely to induce sleep, taking about thirty grains at the usual hour of repose. In twenty minutes after taking it he invariably slept, and in the morning awoke thoroughly refreshed. As the time passed and the effect of the opium became more and more eliminated from his system, he took less of the chloral until his cure was complete. It is not to be understood that the use of chloral destroys the taste for opium, by any means; but the great difficulty in the way of opium eaters who have sought to abandon the habit has been, that after having had the resolution to discontinue its use, the sleeplessness which was certain to ensue became so unendurable that the victim has been compelled to fall back upon his enemy for relief. To opium eaters who really have a fixed determination to escape from their degrading slavery, the hydrate of chloral, administered under the supervision of a judicious medical man, in connection with other treatment such as any competent physician would prescribe promisei to be of inestimable value.—*Journal of Materia Medica.*

Death from Chloroform.—Dr. Hughes Bennett stated, at a late meeting of the British Association, that "he knew of one very sad case that had happened at Edinburgh. A young and beautiful lady, daughter of a barrister, in perfect health, went to a dentist's house one morning, and had a tooth extracted. Five minutes afterwards she was dead. That was only one of many similar cases that had occurred, but had never been published."—*British Medical Journal.*

Bleaching Beeswax.—Mr. L.G. Olmstead, of New York, gives the following statement of a simple and convenient method of bleaching beeswax, that he saw practised in Italy: "The yellow wax is first melted in a kettle, and then is dipped out in a long tin vessel that will hold two or three gallons, and which has a row of small holes, about the diameter of a knitting-needle, in the bottom. The vessel is fixed over a cylinder of wood two feet in length and fifteen inches in diameter, which is made to revolve like a grindstone, in one end of a trough of water, two and one half feet in width, ten to fifteen feet in length, and one foot in depth. As the melted wax falls in small streams on this wet revolving cylinder, it flattens out into a thin ribbon and floats off towards the other end of the trough of water. It is then dipped out with a skimmer—that may be constructed of osier twigs—spread on a table with a top made of small willow rods, covered with a clean white cloth, and then exposed in this way to the sun until bleached."—*Druggists' Circular.*

Death from Inhalation of Ether.—At last a veritable case of directly fatal result from ether inhalation comes to light. It occurred in Boston, in the person of a man who had received a bullet wound in the knee, and who was etherized for the purpose of amputation. He suddenly ceased to breathe during the operation. In nearly every instance of death hitherto imputed to ether, hours, if not days, have elapsed before the fatal result. But the present case is different, resembling in this respect the action of chloroform. The particulars are given in the *Boston Medical and Surgical Journal.*

Cancrum Oris.—John Burton, M.D., Georgia, Ind., gives the following recipe for this disease in the *Journal of Materia Medica:*

℞	Cupri Sulphas..................................	ʒ ss.
	Pulv. Cinchona.................................	ʒ i.
	Aqua..	℥ i. M.

Apply with a Camel's hair brush, three times a day.

I have tried this treatment for twenty years, never having it fail in my hands.

EDITORIAL DEPARTMENT.

Dental Items.—We have received from Dr. Jas. F. Thompson of Fredericksburg, Va., a beautiful specimen of "Calcified Pulp," as a contribution to the museum of the Baltimore College of Dental Surgery. It is one of the best specimens we have met with, and the following is the history of the case as related by Dr. Thompson:

"It is a second left superior molar, from the mouth of a lady, who came to me suffering intensely with what I supposed to be periodontitis. I gave the tooth a thorough examination, and found, to my surprise, no appearance of caries except very superficial, and the color normal. I debated sometime with myself as to whether I should extract the tooth, being a conservative practitioner. I was somewhat afraid that such an operation would reflect upon my skill, but concluded that where there was was so much inflammation of the lining membrane, the nerve must be involved, and with a demand on the part of the patient to extract the tooth, I did so and found, as the cause of the trouble, a calcified pulp. Had I suspected anything of this matter, I believe I could have saved the tooth, but such a diagnosis, unfortunately, in this case, owing to the soundness of the tooth was difficult to arrive at."

The following cases of calcified pulp are narrated in a recent number of the *London Lancet:*

"Mr. White, at the recent annual meeting of the Odontological Society, made an important contribution to an understanding of such cases. A boy eight years old was brought to him on account of continued pain in a lower temporary canine tooth. The tooth being quite sound and firm, he advised that the gum be well rubbed with spirits of camphor as a counter-irritant, and that the boy be brought back in a week. But before this time had elapsed the boy was brought back with a request that the tooth might be at once extracted, with a view to the relief of the incessant pain. This was done, and the cause of the pain looked for in the pulp cavity of the tooth by Mr. White, who at a former time had found intolerable pain caused in a young lady of seventeen, in whom all the teeth on the affected side were apparently sound. She referred the pain to an inferior front bicuspid. This was eventually extracted, at the earnest solicitation of the patient, and on being opened the cause of pain was manifested in a globular mass of osseous deposit in the upper part of the pulp. It consisted of nodular dentine pressing the sensitive pulp against the walls of the cavity. In the case of the little boy, Mr. White's scientific curiosity was rewarded by finding in the pulp an osseous deposit unlike either secondary or nodular dentine. It was more like very coarse cementum; but on closer examination it was found more nearly allied to osseous tissue existing in the cancelli of bone. It filled very nearly the whole of the pulp cavity at the junction of its middle and lower thirds, and was pressing the fascicula of nerve fibres out of their course. There can be no doubt that this was the cause of the pain. Two months had elapsed, and Mr. White had heard nothing more of his little patient."

"The *British Medical Journal* narrates the following case of "swallowing of artificial teeth," one of which proved fatal:

Mr. HENRY SMITH showed to the Medical Society of London a gold tooth-plate and teeth that had been swallowed by a gentleman, a patient of Dr. Hamilton, of Mitcham. Mr. Smith saw him six hours after the accident, and was then able to touch the plate with a pair of long forceps; but attempts at extraction were unavailing. Mr. Smith therefore pushed the plate down into the stomach. The patient felt relief; and nine days afterwards passed the plate by the bowel, with but little pain. Mr. Smith also showed a similar plate in vulcanite, given him by Dr. Johnson, that had been swallowed, and passed through the patient in safety. Dr. King narrated the case of a man in the Edinburgh Infirmary who had swallowed his false teeth. Mr. Syme not being able to pull the teeth up, at once pushed them down. A few days afterwards Dr. King was sent for to see the man, and found him dead. The angular hooks on the tooth-plate had torn the œsophagus and perforated the aorta. In the stomach was a complete cast of its cavity in blood-clot. Mr. Carter had seen a case where a brooch was swallowed. The patient was made to eat a large quantity of bread, and then an emetic was given, when the bread and brooch all returned together. Dr. Morrell Mackenzie was in the habit of using in such cases an instrument known on the continent as the *ramoneur*. It was passed down, and, as it was withdrawn, a sort of brush, expanding, caught the foreign body, and so removed it.

The following interesting case is from the *London Lancet:*

Emma N——, aged twenty-five, whilst in bed on Christmas-eve, dreamed that she was swallowing something hard, and on waking discovered that three artificial teeth fixed to a plate of silver and platinum had disappeared from her mouth. She experienced no difficulty at all in breathing. She could not swallow any solid food, the attempt to do so producing a feeling of sickness; but beef-tea, milk, and broth she found no difficulty in swallowing.

The patient was brought into the operating theatre on the 11th inst. Mr. Walton passed a pair of long forceps without meeting with any obstruction. He then passed an œsophagus bougie for the purpose of exploring. The instrument entered the stomach, but grated against something in its passsge down the tube. The bougie on being withdrawn showed scratches caused by some foreign body. Judging from the upper—i. e.,the last—part of the scratch, the object must have been in the œsophagus, at a point opposite the insertion into the sternum of the third costal cartilages. The scratch itself measured 9 in. in length, and there was about the same distance from the upper part of the scratch to the point of the bougie which touched the patient's lips during the exploration. Mr. Walton then passed a hooked probang, and caught hold of something that appeared to have a sharp edge. He then withdrew the object slowly and carefully to avoid lacerating the œsophagus. When, however, it had been brought to the upper part of the pharynx, the patient made a sudden gulp, and swallowed it again. Mr. Walton then seized a pair of long, curved forceps, and introducing them into the œsophagus, grasped the artificial teeth, and recovered both them and the plate. No loss of blood ensued, and there was only a slight reddish tint in the mucus which the patient spat out.

Although the metallic plate had been out of order for a long time previous to the accident, the patient had never taken the precaution of removing it at night. It held three teeth on one half of its irregular convex edge. Its entire length was 1⅝ in., and the greatest breath 1 inch.

As the operation produced pain, and there must have been more or less tearing of the œsophageal surface, Mr. Walton deemed it advisable that the patient should, for a time, take no food by the mouth. For the first four days she therefore received enemata of six ounces of beef-tea; for three days more these were increased to eight ounces, and administered every five hours. They were all retained. She then began to take liquid food, and shortly afterwards was placed upon full diet. She left the hospital quite well, and without having shown any appreciable loss of strength or flesh.

At a recent meeting of the "Miss. Valley Dental Association" Dr. Watt, in a discussion on the "treatment of the soft tissues of the mouth," remarked :

"One condition of mouths we have frequently to observe and not attribute to other causes, is the "nursing sore mouth of women." Generally an impoverished condition of the blood accompanies this disease. The treatment of these cases is so affected by the constitutional conditions of the patient, that we are frequently too restricted in our treatment, *i. e.* we treat too topically. Sometimes these cases are treated with nitrate of silver or carbolic acid, every day, or every other day without benefit. The treatment is wrong. The blood must be perfect. Physicians used to say to the mother with this sore mouth' "you must wean your child and stop this drain,' as the impoverished condition of your blood will not bear it." Thinks this is in a large majority of cases unnecessary. The zymotic diseases are of this character, produced as they are by foreign substances in the blood. having less vitality than the blood. This virus must be got rid of, and if we can so adjust our remedies that they will kill this poison, and not affect the healthy part of the blood, we have the right treatment to begin with. We want to rid the blood of the rubbish, and then begin to build—knows of nothing better than a mild course of arsenic. The water from springs that contain a trace of arsenic are invaluable in these cases. Doses of from 1-100 to 1-50th of a grain of arsenic are good. Mild topical applications of carbolic acid also may be employed. This treatment is fatal to the foreign organic matter in the blood, and the ulcers soon begin to grow less. Then we are ready to build. Without this constitutional treatment, the local treatment, is too frequently only time misspent.

At the same meeting Dr. Taft spoke as follows in regard to "gold foil of the heavier numbers:"

My practice lately has been to make the body of the filling with No 4 or 6, and to finish with the heavier foils, 30 and 60. A good deal depends upon the condition of the gold. If we could get the gold always just right the heavier foils, would then perhaps be better than the light for the whole. The advantage of using heavier foils on the surface is that a better finish is secursed. He finishes by laying on the flat, smooth pieces, and welding perfectly about the edges, by letting the heavy gold overlap the thin wall, or rather to hug down on the friable edge and thus secure and protect it. This can be better done with No. 60 in his hands than any other gold. We can save more of the form of the tooth with this method and No. ,than with thin foils."

Dr. Morgan on the "the treatment of alveolar abscesses remarked that he "thinks it unadvisable to attempt the cure of abscesses in the molars of a patient of strumous diathesis or in scrofulous patients. Treats through the pulp canal or alveolus, and frequently makes an opening to the point to be treated. Sometimes there appears to be a calcarious deposit on the point of a root, but analysis has found it composed entirely of animal matter. Sometimes simply cutting this away, or scraping the point of the root, or cutting away a little of the cementum and dentine at this point, is all the treatment necessary. Uses creosote in full strength frequently."

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ARTICLE I.

Bone Fibrous.

By George B. Harriman, M.D., D.D.S.
Prof. of Microscopic Anatomy, Boston Dental College.

The law of progress demands the multiplication of books on science and art. New developments are constantly occurring. Old theories and practices, the seeming embodiments of the wisdom of the past, and universally accepted as truth, like old fashioned garments are discarded, and superseded by more modern ideas, and appliances.

The medical, surgical and dental professions, have felt the electric impetus, and bound forward in the race with the vigor of youth and immortal truth.

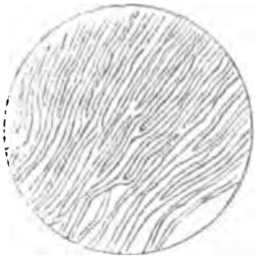
The patient slowly consuming with fever, was but a few years ago denied water to allay his burning thirst, and fresh air was rigidly excluded from his apartment.

Now plenty of water and thorough ventilation is allowed with the most beneficial results. New theories have obtained with regard to the structure of the human body, mere notions, unsubstantiated by facts, were advocated in regard to human bone. Sections of bone were ground down thin, the vessels gradually becoming invisible, and the *cavities* containing these vessels, were termed *medullary canals.* The error of this theory is evident from the fact that these *narrow spaces contained no marrow.*

Bone corpuscles, and their processes, bone canals (CANALICULI OSSI), were common terms. At another period it was supposed they contained a deposit of calcareous matter; this supposition was confirmed by its presence when viewed under the microscope, thus giving rise to another term, CANALICULI CHALICOPHORO. It was however found that no lime was contained in what was termed canals, but the lime was diffused in the bone. When, however, it was discovered that the calcarious salts had been erroneously located, resort was had to the theory that no lime existed in bone, and that it contained nothing but cavities and canals permeated by a fluid. These cavities were called fissures, and by some writers *bone fissures.* The latest, and now generally received theory, is that bone contains "structures provided with special walls and boundaries of their own, which separate them from the intermediate substance." These are termed *real corpuscles*, *atoms*, *bodies.* It is asserted that by the use of hydrochloric acid we are enabled by dissolving the basis-substance, to disengage the corpuscles from the intermediate substance, and thus demonstrate that they are really independent structures. Within these corpuscles or bodies, a nucleus may be distinguished, in which are cellular elements of stellate form. Bone, therefore, it is claimed, " exhibits in its composition a tissue containing in an apparently altogether homogeneous basis-substance peculiar stellate bone cells, distributed in a very regular manner."

This is Prof. Virchow's theory, and was first discovered by him more than fifteen years ago—an authority highly esteemed by the medical and surgical practitioner. Sir Lionel S. Beale, in his recent investigations, confirms Virchow and calls it " germinal matter."

While these eminent medical men have my esteem, and most profound respect for their *invaluable contributions to science*, yet repeated experiments, and careful analysis, have led me to entirely different conclusions. My theory is that the component parts of bone are *fibres* and *calcareous salts*. I have repeatedly viewed sections of bone, cementum and dentine, as thin as the three thousandth of an inch, which can be turned off in a lathe.



The above cut represents a thin shaving of bone, with the hard part (calcareous salts) dissolved with Prof. Hosford's acid phosphate, and is magnified two hundred diameters; and I have not found canals, nor tubes, nor fluids, nor cells, nor hollow spaces containing air, but FIBRES AND LIME SALTS.

The dentine of the tooth is composed of fibers and calcareous salts it is the same with the cementum; the fibres conveying nutrition to the bone, dentine, and cementum. Between bone, cementum, dentine, and plant, and tree, there is analogy. In the tree there are no canals or tubes, but fibers, and the fibers convey and diffuse nourishment for the trunk, branches, and roots of the tree.

ARTICLE II.

Conservative Dentistry.

By GEORGE H. CUSHING, D.D.S.

Read before the Chicago Dental Society.

The subject assigned to me for this evening, is one, the importance of which I think is not properly appreciated, and in attempting its treatment, I am met at the outset with the inquiry which I know is made inwardly by many minds if not outwardly by many lips: "What is conservative dentistry?"

I should not perhaps have thought it necessary to attempt any elaborate definition of the term, if I had not heard two gentlemen of the profession, among the most intelligent and advanced of my acquaintance, making the inquiry as to the meaning of the term which constitutes the heading of this paper; so, though the matter seemed so clear to my own mind, I have upon reflection concluded that it is very probable that the term may convey little significance to many minds, and, therefore, demands that it should be as briefly defined as is consistent with a fair understanding of the subject.

Conservative is defined by Webster as "having power to preserve in a safe or entire state, or from loss, waste or injury—preservative." It comes from the Latin "con," and "servare," "to keep, to guard." The term has been greatly in vogue for several years past, as applied to general surgery, though it is doubtful if any uniformity of definition prevails among medical men.

Prof. Rae, of Rush Medical College, says: "Conservative surgery is conventional, meaning, as I understand it, preservative surgery, and is generally applied to the place between extremes. It is usually applied as antipode to heroic surgery."

Professor Gross in his work, in the chapter on "Excision of Bones and Joints," says: "Excision differs from amputation in this, that while in the latter the bone is removed along with the soft parts which surround it, in the former the bone alone is cut away, the integuments, muscles and other tissues being retained, in order that they may contribute to the future usefulness of the limb, or, in other and more comprehensive language, while in the one case all the structures are destroyed, in the other as many of them as possible are preserved. Hence this department of surgery has very appropriately been denominated 'conservative surgery,' and it is gratifying to know that it constitutes one of the leading characteristics of the healing art of the present day." He thus seems to confine the term, in its application, to that especial division of surgery.

Again, Dr. Davis, of New York, has published a work entitled "Conservative or Mechanical Surgery, as exhibited in remedying some of the mechanical causes that operate injuriously, both in health and disease." Thus, there would seem to be no authoritative definition of the term among surgeons, yet I believe there is a broader and deeper significance to the term than any of the definitions above given would seem to imply, and one which is generally felt among surgeons, although perhaps difficult to define. I think it clearly has reference to those advanced methods of practice, which have of later years become so general in any and all departments of surgery, which tend to lessen the frequency or operations involving great loss of structure, either by substituting less formidable ones, or by anticipating disease, so that in many cases no operation at all is necessary.

The surgeon following this higher order of practice thus becomes the conserver—preserver—his province is, "to keep" —"to guard"—not only the life and health of his patient, but also the integrity of his body to the very fullest extent.

If, then, there is this important application of the term conservative in relation to general surgery, how much more emphatically should it apply, as in reference to the specialty of dentistry.

It is true that the dentist has not to operate on organs or parts of the body involving, as a rule, such important relations to the vital functions, or locomotion, or to general usefulness, as the general surgeon has; nor does his operations often threaten danger to life or general health, but his field is a very important one, and upon his successful operations, or otherwise, often depends to a great extent, not only the comfort, but the health of his patient, and his skill should be as conscientiously applied as though he were operating on more vital organs. He is constantly called upon to decide between the immediate loss of organs of the economy, or the effort to preserve them. In his case it is utter loss of those organs on the one hand, as against the attempt to preserve them on the other, while there is not, as is often the case with operations in general surgery, the danger of fatal consequences to be weighed in forming a decision.

There are those in the profession who hold that there is a moral obligation binding upon all men, not to mutilate the human body in the slightest degree beyond what is actually demanded as a "dernier resort," to remove otherwise incurable disease, or in case of extreme suffering, or the removal of obnoxious deformities. Such men will tell you "it is a sin to extract a tooth." Without taking the extreme position which this class occupy, I will say that there is more truth in their assumptions than the profession generally are willing to acknowledge. The province of the dentist is essentially that of a "conserver"—a "preserver." He is in duty bound "to keep" and "to guard" that portion of the of the human body which it is his province to treat, as much as for the general surgeon to save to the uttermost that which lies within the province of his art to treat.

Let us then inquire as to the present status of the profession as regards this sort of practice—how we stand as in relation to the past, and what can be forecast regarding the future—touching briefly some of the prominent points in relation to the subject which seem to demand especial consideration.

The time was, and not more than twenty years ago, when the prevailing practice was to extract most aching teeth, except perhaps the six anterior teeth in either jaw,—or, if such teeth were not extracted, the majority of honest practitioners gave little encouragement to the patient for any prolonged usefulness of a tooth, the pulp of which had to be devitalized before filling. Dating perhaps from that time, advancement began to be apparent in the methods of treatment of teeth with exposed pulps, and greater thoroughness in the operations of removing the devitalized pulps and filling of the pulp chamber and canals, brought with it greater encouragement as to this method, until a few years later the thorough and conscientious practitioner could honestly advise his patients to have this operation performed, as promising reasonably of success. This was eminently an advance in "conservative practice," and so marked that I doubt not all of you here present can corroborate the statement, that while, even ten years ago, the usual remark of the patient when coming to us with an aching tooth was: "Doctor, I have an aching tooth, I want you to extract it,"—that to-day the large majority say instead, "Doctor, I have a bad tooth, I wish you would see if you can do anything to save it." And while two years ago it was very difficult to persuade some patients—and very many, too—to consent to the attempt to save the tooth by devitalization of the pulp, to-day it is sometimes difficult to persuade people to have a tooth extracted, even when there is obviously no other course proper to be pursued.

This is evidence of remarkable advancement, for when you find the people educated to the point of demanding such operations, you may be sure that the operations have met with favor, through the established evidence of their reasonable success.

Recognizing the demands of this conservative principle, earnest men in the profession, even as long ago as twenty-five years, or thereabouts, turned their attention toward devising some method of treatment of exposed pulps, which should render it possible to fill such teeth, and retain at the same time their vitality. Various methods of capping exposed pulps were pursued, and some with occasional seeming successes, but after years of experiment and experience, the profession came to decide generally that the capping of exposed pulps was not a reliable practice, and it was in the main abandoned, and devitalization and extirpation held almost undisputed possession of the field, until the introduction to the notice of the profession of the method of capping with oxy-chloride zinc. This method has seemed to prove thus far, more successful than any previously tried, and although it has not yet been tested by sufficient length of time to justify us in pronouncing fully upon its merits, it certainly can be said to give great promise for the future, and through its aid we may reasonably hope to arrive at the highest point to be attained in "conservative practice."

These are the most striking features which present themselves in a review of this subject, but there are others almost as important, and in connection with which there are some points which especially demand our consideration.

The introduction of cohesive foil and gold, inaugurated a marked era in dental art, rendering possible the performance of very many operations which otherwise, or with soft foil, could never have been performed. In this way the crowns of teeth can be restored, and the organs rendered reasonably permanent, while otherwise many such teeth could not be successively treated, and would early fall a prey to the forceps, and others could only be treated with partial success by the use of amalgam, that always uncertain material, even if there were no other objections to its general use.

The class of operations here referred to have frequently been derisively termed "*fancy operations.*"

They are fancy operations in just the sense that the "excisions of joints" are fancy operations, as compared with amputation of the entire limb, of which Professor Gross—as before quoted—says, "it is most gratifying to know that it constitutes one of the leading characteristics of the healing art of the present day." I am glad to be able to say, that the same expression may be used as applied to our specialty, for such operations are eminently conservative, and are daily coming to be better understood and more justly appreciated.

The improved methods of manipulating cohesive foil, together with the superior character of instruments of late years introduced, which have come to us the result of earnest thought and experiment, tested by experience from leading men in the profession, leave no excuse for most men to use any other material than gold for filling in a large majority of cases. And yet, notwithstanding the great advance which it has been affirmed has been made toward true conservative practice, we find to-day, very often, in large cities particularly, a class of operators, and first-rate operators as well, who use amalgam to an alarming extent. Men who command first-rate fees too.

You will often hear such men say, "I frequently hear of Dr. A. or B. charging forty, fifty or sixty dollars for an operation, but I never could bring my conscience to the point of making such charges." To those acquainted with the operations of such men, the reason is very obvious—they never perform the operations which entitle a man to such a fee. In such cases they invariably use amalgam, when gold could be used to much greater advantage to the patient, and where, did they use the gold, they would find that their consciences would not only allow them to charge such fees, but that they could not conscientiously perform the operations for less.

It is just here that I think a large part of the profession fails to appreciate the demands of the conservative principle; neglecting to do their duty by their patients, either through fear to demand a just recompense for their skill and labor, or from disinclination to make operations demanding so great an outlay of time and nervous force. There are many practitioners who follow this course through ignorance, and sin blindly; but for such there can be no excuse offered, because if they attend the Societies faithfully, take and read all the journals studiously, and inform themselves as fully as they can, it will be made clear to them that such operations as those just referred to can be made with gold successfully, and of a much more lasting character than with any other material and they should learn to do these things, nor rest satisfied until they can perform successfully the operations which so many around them have long been and are still constantly performing.

I wish particularly to call attention to this point, and not so much that of the younger members of the profession, as of the older—for to the latter, as a general rule, the temptation comes with much more force, to shrink the responsibility and fatigue of such operations, than to the younger members. The older members generally feel perhaps that their reputations are established, while the younger have theirs still to build up.

Again, the temptation comes to most of us almost daily to extract teeth which we feel assured may be preserved by careful pains-taking treatment.

We dread to undertake operations which we know will be tedious and discouraging, both to the patient and to ourselves; and so many times we try to convince ourselves against our real convictions, that the best that we can do for our patients is to advise extraction. This we surely have no right to do, for we are not thus doing our highest duty—if there is anything higher than simple duty—and that duty is to be found in simply living up to the conservative principle.

It may be safely affirmed, as a general rule, that where there is reasonable hope of ultimate success, the attempt should always be made to save a tooth, and it should be restored as fully as possible to its original usefulness. Anything short of this for our aim is not truly conservative.

These are the main points to which I desire to call your attention, but it must not be forgotten that prevention is better than cure, and that the highest expression of conservative practice will be reached only when we can successfully address ourselves to prevention rather than cure.

What I have said imperfectly upon this subject has been with a view to enunciate a great principle, and is not to be understood as condemning *in toto* certain practices, as for instance, the use of amalgam, which under certain circumstances is unquestionably invaluable, or with reference to extraction, for clearly that is frequently demanded; but it is affirmed that according to our light our endeavor should always be conservative.

The mistake must not be made in the application of the term conservative, in its sense of being opposed to change or innovation—which is one of its definitions—for conservative practice in surgery or any of its branches depends for its very life upon change and innovation—it is essentially progressive.

The endeavor has been made to place this subject before you in a manner that might be comprehended, and with the hope that the importance of it might be impressed upon your minds. In that hope I shall leave the subject, summing up briefly the definition of conservative dentistry as the conscientious application of the highest attainments in our science and art, tending always to the conservative—the preservation of the teeth in a safe or entire state, keeping and guarding them from greater loss of structure than is absolutely essential they should suffer in the process of restoring and saving them.

The advance which has been made in this direction during the past ten years, gives us great encouragement to hope for the future, that conservative dentistry will ultimately attain to a near approach to perfection, and rank deservedly among the highest specialties of surgery.

To this end we should not forget that every individual owes it to his profession, himself and the public, to advance by every means in his power, the science and art of his chosen calling, that that day may the sooner arrive, when conservative dentistry shall be crowned with the well-deserved praise of carrying healing and beneficence on its wings.

ARTICLE III.

The White Sulphur Springs Meeting.

Dr. W. H. Morgan, President of the American Dental Association, requests us to give some information concerning the best routes for reaching the "White Sulphur," where the 11th annual meeting will be held, commencing on the 1st day of August next, at 10 o'clock A. M.

These springs are situated in Greenbrier County, Virginia, at the present terminus of the Chesapeake and Ohio railroad, the nearest town of any size being Staunton, in Augusta County, through which town it is necessary to pass when going by rail. Delegates from the East, West and North must proceed to Washington city and take the Orange, and Alexandria railroad as far as Gordonsville, where they meet with the Chesapeake and Ohio railroad which will carry them to the springs.

Delegates from the South proceed to Richmond Va., Lynchburg Va., or Knoxville Tenn. Those who go by Richmond, will proceed on the Virginia Central railroad to Gordonsville, and thence by the Chesapeake and Ohio road to the springs. Those who go by Lynchburg will take the Orange and Alexandria railroad to Charlottsville, and then the Chesapeake and Ohio road to the springs. Those who go by way of Knoxville will take the Virginia and Tennessee railroad to Lynchburg Va., and the Orange and Alexandria railroad to Charlottesville, where they meet the Chesapeake and Ohio road.

By the Knoxville route, delegates will also find at the "Montgomery White" on the Virginia and Tennessee railroad, in Montgomery County Va., a daily line of stages which will carry them direct to the "White Sulphur," a distance of sixty five miles, saving considerable travel by the railroad to Charlottesville.

ARTICLE IV.

Kansas State Dental Society.

By Dr. J. D. Patterson, Rec. Secretary.

Editor of Amer. Jour. of Dental Science:—The dentists of this State met in convention, at Lawrence, on the 2nd of May last, and organized a State Dental Society. Dentists present, Drs. H. H. Marvin and A. M. Callahan, of Topeka; Dr. J. H. Sawyer, of Atchison; Dr. E. C. Fuller, of Fort Scott, and Drs. J. B. Wheeler, and J. D. Patterson, of Lawrence. A permanent organization was effected, and named, *The Kansas State Dental Society*. The Code of Ethics adopted was that of the American Dental Association, and the Constitution and By-laws similar to that in other standard local societies. Dr. J. B. Wheeler was elected President; Dr. W. H. Marvin, Vice-President; Dr. J. H. Sawyer, Treas.; J. D. Patterson, Recording Sec'y.; Dr. E. C. Fuller, Corresponding Sec'y. Dr. Fuller was elected delegate to the American Convention, for 1871. A vote of thanks was tendered Dr. Marion for inaugurating the movement for organization. The first semi-annual meeting will be held at Topeka, commencing on Sept. 12th, 1871; annual meeting at Atchison on May 2nd, 1872. After all necessary business was transacted, an irregular discussion was held, with an exchange of opinions on dental subjects. Members were highly pleased with the success of this movement, placing the profession in the State of Kansas on a footing with that in older States, by thus organizing on *a solid basis* a State Society. Cordial invitation for co-operation by the profession is extended by the Society.

The Secretary was instructed to furnish reports of this meeting to the leading dental journals of the country.

ARTICLE V.

South Carolina State Dental Association.

At the anniversary meeting of the South Carolina State Dental Association, held in this city on the 10th, 11th, and 12th April, the following gentlemen were elected to serve for the ensuing year:

President, Wm. C. Wardlaw, Abbeville; 1*st Vice-President*, Thomas T. Moore, Columbia; 2*nd Vice-President*, B. A. Muckenfuss, Charleston; *Corresponding Sec'y*, Theodore F. Chuypein, Charleston; *Recording Sec'y*, O. J. Bond, Marion; *Treasurer*, W. J. Beann, Charleston.

THEODORE F. CHUYPEIN, Corresponding Sec'y,
South Carolina State Dental Association.

ARTICLE VI.

Boston Dental College.

The Commencement of this college was celebrated on the ninth day of March last, by dissertations of the graduating Class and addresses of professors and friends.

By reason of some circumstances which it was not possible to control, the graduating class was not so large as usual. The dissertations, however, of those who did graduate, evinced a thorough knowledge of the profession and preparation for its practice.

Professors W. H. Atkinson and Wetherbee, delivered excellent addresses. A very interesting feature of the occasion, was the presentation by the College, of a very valuable and costly gold watch, to the President, D. S. Dickerman, D. D. S., M.D., which service was performed most eloquently and appropriately, by George B. Harriman, D.D.S., M. D., who has been elected to the new Professorship of Microscopical Anatomy.

The following gentlemen received the degree of Doctor of Dental Surgery: Darius F. Drake, Boston, Mass.; John Q. Dickerman, Taunton, Mass.; Charles N. Pierce, Portland, Me.; Alonzo H. Sylvester, Boston, Mass.; David G. Williams, Boston, Mass.; Fred. A. Locke, Portland, Me. H.

ARTICLE VII.

American Dental Convention.

The seventeeth annual meeting of the American Dental Convention will be held at Saratoga, N. Y. commencing on Wednesday the 9th day of August 1871.

All dental practitioners are entitled to the priveleges of the Convention, and invited to present any matters of general professional interest.

SELECTED ARTICLES.

ARTICLE VIII.

Minute Structure of an Amalgam-Filled Tooth.

By S. P. Cutler, M.D., D.D.S.

This tooth, lower second left bicuspid, decayed on poterior approximal surface, and extending over half of grinding surface, but not quite reaching the nerve, had been filled six months, and had given no trouble until a short time ago, when it became painful and somewhat elongated—pain experienced on occlusion of jaws for the twenty-four hours previous to its removal. The tooth never gave any trouble until a few days before extraction. The young man is about twenty-one years old, of nervous temperament, a clerk in a store. The fang of the tooth, about half way up from apex, presented that peculiar hyaline, or translucent appearance, usually witnessed in old age and in loose teeth, showing, more or less, closing of tubuli, and, more or less, secondary ossification of pulp cavity. It also had a long fang, rather crooked, firm in socket; none of the teeth missing on that side, though many of them were filled with gold and one molar with amalgam. This last at first was supposed to be the offender. The filling was removed, which gave entire relief to that tooth, but soon the pain reappeared with renewed energy in the tooth under consideration. On splitting open the tooth the crown portion of the nerve was found to be in a suppurating condition of recent origin, extending into the neck. The balance was only inflamed.

MICROSCOPIC APPEARANCES.

A central longitudinal section gave the following appearances: On the side of pulp cavity, occupied by the plug, secondary dentine had progressed inwards and downwards to a considerable extent as far as the alveolus, becoming gradually narrower, and finally ceasing by gradual taper to the opposite side of normal cavity—the secondary formation passing more than half around the cavity. The dentine over this region, up to decayed surface, translucent, similar to fang, with the usual characteristic change in tubular structure, though not so marked. The balance of crown normal, only the surface of decay which was not entirely removed in excavating, though no signs of decay going on. For a short distance, so far as the discolored *dentine* extends, there is the usual characteristics buccated or beaded appearance in tubuli, not caused by reason of mercury, as that is a common appearance of decayed dentine. I could discover no signs of mercury in tubuli whatever, or any original defects in the dentine. The pulp cavity of fang, to the extent of secondary change, as mentioned above, presented the usual secondary dentification from apex up to about the middle. On all sides about equally narrowing the canal, showing the peculiar irregularities of secondary dentinal tubuli, so often referred to in my former articles. The cement on one side of the fang was hypertrophied up to the middle, or as far as the change in the primary dentine and secondary limits. The usual bone structures of the cement somewhat changed the canalculi, being less distinctly marked. My object in writing this article is to show the effects of filling where the decay is extensive and nerve nearly exposed and sensitive. This tooth had the white form of decay, as I was informed by the operator who filled it. Under the filling, the tooth cavity was dark and firm, the amalgam filling also being dark but sound; dark from oxidation, no doubt. There was a portion of the white softened dentine left intentionally over the nerve as a protection, or rather to avoid exposure of nerve from too much excavating. The oxidizing of the amalgam, no doubt, caused the darkened appearance of the dentine, and arrested any tendency to further decay from therapeutic influence. I examined closely to see if there was any traces of quicksilver in the tubuli or surface of decay or nerve cavity, but failed to find any.

Now, the question is this: is it possible, even where the pulp is dead, for the vapor of quicksilver to enter the minute tubuli by force or *osmose* action, or any other way, as there seems to be no adhesive affinity between the mercury and dentine to allow of what is termed *welting?* This is governed by certain affinities, that is, if the adhesive attraction between a liquid and solid exceeds one-half the cohesive attraction of the liquid, then welting takes place, otherwise not. Now, mercury and gold, silver and tin, possess this property, and if the tooth was composed of similar materials the mercury would readily pass into and through the tubes, if open; but there being no such affinity, no mercury could be found in dentinal tubes. Water will readily enter dentinal tubes, as the requisite affinities there exist. These fine capillary tubes may be supposed to absorb on the same principle as welting. Mercury, glass, porcelain, and some of the metals possess no such affinities. Many other bodies might be also named. Mercury will even dissolve gold, silver, tin and other metals, and when this takes place the *affinity* goes still further than that of welting, and is explained in this way, when any solid body is dissolved in a liquid, or forms a solution, the adhesive affinity between the solid and liquid exceeds the entire affinity of cohesion of the fluid atoms. What are the facts in relation to the tooth under consideration? This tooth had lost a large portion of its crown by decay, which was restored by an amalgam filling. This being a foreign body to the tooth, imparted its shocks through its conducting power, which being abnormal to the tooth caused disturbance to its myriad of nerve fibrils weakening their powers of vital resistance by slow degrees. As the vital resistance ebbs, the mineral encroachments march on apace, that is, as the vital integrity lowers the circulation in the part becomes lessened or stagnated. In consequence, there would be more time allowed for the mineral salts, as lime, to infiltrate into the now enfeebled tissues, and there remain a sufficient time to permit absorption to take place. In this way a nucleus is formed in the pulp substance, which serves, in turn, to attract more atoms around it and continues to grow, similar to the formation around the teeth, forming nodular dentine. But in the above case I found no nodules in the pulp, as I might have expected, on the contrary, I found precisely the same state of things that always takes place in old age, though in a much more hurried manner. In the one case, perhaps, an effect, and in the other, a cause, of lessened vital resistance. This effect, reacting and serving equally as a cause in both cases, bringing about the same results. This, though not yet a settled fact, may answer us as hypothesis, and may ultimately prove a correct theory. In the case cited above, there was of necessity great destruction of nerve fibrils, from the extent of decay lessening the sum total of vital resistance, at least throughout the substantia eburnia, or dentine, allowing the growth inwards in tubes and pulp cavities as already given above. Why the same effect did not take place throughout the entire tooth is not so easily accounted for, as this same partiality is recognizable in all similar cases from whatever cause. Even the changed dentine is not uniform in its character, the portions unchanged always presenting the usual normal appearance, only more yellow in advanced age. In all such cases the tubes are narrowed, more or less, throughout, as well as the entire pulp cavity. At what precise time this process commenced in the above tooth is not easy to determine. It may or may not have commenced before filling, though from the numerous observations I have made in teeth similarly decayed, I am led to believe the change took place after filling. How much depended on the influence of the mercury I cannot say, neither can I say that gold would have done any better, or even tin; each might be governed by relative conducting powers. Whether the battery influence of the amalgam had any agency in the process, must be decided by more extended observation. It is possible that some non-conducting substance, such as gutta percha, or Hill's stopping, used as a filling, or as a capping under a metallic filling, would offer greater protection to the beleagured pulp beneath. O-sartificial is a non-conductor, but on first application is irritating, from the action of the hydrochloric acid on the lime of the tooth. The greater affinity of the acid for the lime, than for the zinc, decomposes a superficial layer, and in consequence renders that layer chalky. This becomes manifest through the enamel when in contact with it. This I propose to remedy by first introducing styptic colloid into the cavity on cotton and letting it remain a few moments, then remove the cotton, and by the time the os-artificial can be introduced into the tooth the ether is evaporated, leaving an impervious coating which the acid has no power to act on, in this way permanently projecting the lime of the tooth. Non-conductors also have their objections, as in the case of rubber plates. In gaining one point we may lose another, so that we have much to learn yet on the subjects of fillings in large cavities. Os-artificial, like every new lion in the arena, needs taming before it can be regarded as perfectly harmless under all circumstances.

In the above case there might have still been a chance for healthy action in the process of secondary dentification, could the process have been conducted a little slower, so as to have allowed sufficient time for pulp absorption, so that it could have been removed out of the way in time, and not have been too much crowded in among delicate nerve fibrils, causing inflammation and its consequences as above named.

The other day I extracted a molar for a young man which was decayed nearly to the nerve and aching. On splitting it open I found the bulb, or pulp, nodular, and no signs of inflammation. The pulp had a white appearance, and was unusually dense and plump throughout. Where the nodules were not, it was evidently thoroughly saturated with lime salts, so much so as to prevent any undue distinction of vessels and consequent inflammation. This tooth ached from pressure of earthy matter among the nerve fibrils, though not of an acute character, as in cases of actual inflammation of pulp. In a short time the entire pulp must have become ossified and ultimately subsided into quietude. The investing pericementum was inflamed, which was another source of trouble. All such teeth possibly could be saved by proper treatment, by assisting nature a little in her difficulties. This is only one, out of a great many that I have examined that were in a similar condition, that I might mention. I am not aware that other writers have paid much attention to this condition of pulp but only the nodular condition. This saturation of lime salts I have been studying carefully for some time, with a view to restoring such teeth, when troublesome, to a healthy condition. This is in many cases practicable, where the patient is manageable, or willing to wait and endure for a time a little inconvenience. There may be skeptics on this question, as well as on other unsettled points, but they are generally instigators and open to conviction. My ideas concerning the cause of this condition of pulp have been repeatedly given to the profession, but I will recapitulate a little. In the first place, there must be a weakening of vital resistance in the part before any such encroachments can occur. Then a stasis in the circulation takes place from want of capillary integrity of function; or, in other words, *defective pronouncement* on their part, owing to neural or vital weakness, as the capillaries have a special function to to perform. After stagnation in the vessels for some time, the lime salts begin to osmose into the extra vascular tissue, and thereby, desiccating or drying, they begin to thinken and ultimately harden into nodules, sometimes filling the entire pulp, as in the case cited above, and by their pressure forcing the blood-vessels to deplete themselves, and by pressure pain is produced.

In the treatment of such cases, in the first instance, we must restore vitality to the pulp, which may be done by local stimulants of various kinds, including galvanism. This may be readily applied. At the same time weak vegetable acids might be used on cotton sealed up in the cavity. The acid should not be strong enough to decompose the dentine. This may be alternated with carbolic acid, creasote and various other agents. The object of the acid treatment is to dissolve out the soft solid lime salts from pulp: vinegar will do for this purpose. These ideas are suggestive only, not being based on very extensive experience with such teeth in the mouth, but outside with favorable results. I have treated many teeth successfully where I believed this acidifying process was going on; I have one of the kind in my own mouth, which gave me trouble, though not decayed. We often see cases in young subjects, where the teeth are very much crowded and lapped, causing trouble from pressure one on the other sufficiently to cause nodulation.

We often cap and fill teeth where there is slight exposure, sometimes with success and at others with failure and subsequent death of pulp. Most of the successful cases, sooner or later, undergo ossification of cavity or pulp, or both, to a greater or less extent. Sometimes such cases, from hurried action, are lost, when they might be saved by filling.

The lime salts, previously mentioned, after saturating the pulp, more or less, from pressure, drives the blood slowly and gradually out of the tooth, the salts taking the place of the blood in the vessels as the blood leaves them, and the entire pulp becomes differentiated into secondary dentine. The nerve fibrils alone resist this process, and in some cases, succomb under the extent of earthy influence and suffer more or less ossification, the pressure causing their absorption.

One very remarkable and noticeable feature in the pulp of an aching tooth, where it is saturated with the earthy salts, is a total want of all signs of inflammation in such pulp, even where only a portion is saturated, which has a chalky feel and appearance. This chalky appearance always precedes nodulation. When this is perfected, the noduli becoms translucent, and lose the white appearance. In a few exceptionable cases the pulp remains perfectly white.—*Dental Times.*

ARTICLE IX.

Dental Hygiene.

BY L. J. B. LEBLANC, L. D. S.

Translated from the French, and read before the Montreal Dental Society.

I have not the intention of writing a work of considerable length, but a mere essay on dental hygiene, and I shall abstain from those long technical words, more or less irregular; some would seem like India-rubber, on account of the facility with which they are lengthened at pleasure. My object is, therefore, to awaken the attention of the public on one of their most precious advantages, which in order to preserve them, they display the most incomprehensible indifierence. Nevertheless, this subject concerns, at the same time, the cleanliness, health and rest which are obtained only by the absence of pain and the most constant care. We do not agree, I believe, on what really constitutes beauty. Our different ways of seeing and judging render its definition an object of great difficulty. All the parts which compose the human fignre vary in their form to the utmost extent. That is why we are prevented from clearly defining it, and describing how their harmony produces what we agree to call a handsome or ugly face. So we are induced to say that beauty is only and properly regarded as such by a general and implied convention ; but that convention is unspecified according to different climates —for instance, a narrow forehead, thick lips, a broad flat nose, wool instead of hair, are the marks of beauty among Africans, and among us, signs of ugliness. But teeth are said to be handsome, when they are white and well arranged. When nature made them handsome, it took everywhere the same care of setting them in rosy guns ; and the carmine of the lips set off their whiteness still more. They are not only ornamental but also very useful to health. Many, however, seem to be ignorant of that important truth. Nevertheless the slightest attention is needed to convince one's self that teeth are absolutely necessary to the preservation of the animal economy, since they are designed for one of our principal functions. How many teeth were broken by imprudence and vain show, especially among those set for the trituration of food, and consequently for the easy digestion of the stomach, which is only the secondary agent and above all the protector of health ; hence if it is deprived of the preparatory work of the jaw, and receiving but food half triturated, its various functions are laborious—wasting slowly its elasticity, it grows weak, and loses that vigor which, when once lost, cannot be restored by the most powerful tonics, and the richest of victuals. "You are a foe to your life if you do not masticate well" says the latin proverb. Those who have good teeth and do not masticate well can profit by this lesson. But what can we say to those who have bad ones ? They must guard against that difficulty by dint of care, since a good mastication is so necessary to health. Yes, when the uneasiness, the bad digestion and the weakness of the stomach set in, one says: "If I had my teeth I would give a great deal;" but when you had them—it was perhaps troublesome, but it is far more troblesome at present. A physician said very wittily: "Formerly the fable of the stomach and its parts was composed, but if at present we wrote that of the stomach and the teeth—oh! how numerous would be the wrongs of the latter towards the former." The same writer attributes rightly a great number of diseases of which the cause is unknown, to the impurities that the saliva of slovenly mouths carry in the blood, bringing them along by mastication. This causes at length a bad chyle always injurious to health.

You can see, gentlemen, that the teeth are as necessary to health as to beauty; it is for that reason that we always seek the means of keeping them sound. The process for that aim is ordinarily slow. It is submitted to general rules which I will explain as briefly as possible.

Generally the teeth of the first dentition are not susceptible of any care for cleanliness, unless they be effected by decay, in which case they must be plugged, and brushed often in order to check the progress of that affection. It is at the age of seven or eight that children should be taught the habit of brushing their teeth twice or three times a week, with a soft brush, so as to provide against caries, and the pains, more or less smarting, resulting from it. By these means the teeth and the mouth are kept in a state of cleanliness and freshness which is so agreeable. In case the teeth should be covered with tartar, it would be necessary to remove it to avoid caries or inflammation of the gums. Another inconvenience of tartar is that it causes an offensive breath.

From the age of fifteen the teeth must be brushed every day, and with a powder well prepared, two or three times a week. The remainder of the times with a liquid acting like a tonic, which will dissolve in the same time the mucus deposited on our teeth while sleeping. Experience teaches us, gentlemen, that their daily cleaning is their best preservative. It would be more suitable to clean them after meals in order to remove the alimentary substances; and if particles of food are deeply placed in them, a tooth-pick should be used, a custom generally known at the present. There are parties who satisfy themselves with a piece of linen to rub their teeth without taking the precaution of rinsing the mouth. This is far from being the clean and proper way; on the contrary, it is very injurious, because a certain pressure is made on the gums, and that habit has no other advantage but that of gathering and hardening tartar in places where it is liable to accumulate itself, that is to say, between the teeth and their necks.

Now, persons wearing false teeth are not absolved from cleanliness, more than others; they should take great care of the mouth; if otherwise, the sets cover themselves with food and tartar, which remaining habitually in moist and warm places, become infected and cause a great deal of inflammation to the mucous parts, and then the mouth becomes the seat of an intolerable smell. Unfortunately, gentlemen, we have often the evidence of what I have just said. A man must despise himself to a great extent to keep so much dirtiness, and we, poor dentists, are often compelled to stand a good distance from these persons, and in spite of us, their breath, which is able to kill flies while flying, reaches us; we would not be so unlucky if nature had given them, as the alligators of San Domingo, under their lower jaw, the advantage of having a gland holding musk.

Though the rubbing of the teeth with a mere brush dipped in aromatized water is nearly always sufficient for maintaining the cleanliness of these organs, there are nevertheless persons either by the nature of their constitution or by previous negligence, who are compelled to seek more energetic means, that is to say making a great use of powders.

I shall say a few words on those which are still employed at present. Coal well ground, is a popular dentifrice; it is an antiseptic; its use almost given up, still they prepare it in our drug stores; its action is nearly useless on the enamel —its constant use ends by causing the teeth to appear black and the gums as afflicted with scurvy. This applies also to burnt crusts of bread which are used by several persons. Soot has been used for some time because it was believed that the chimney sweep's teeth were always white—that belief is erroneous. Their teeth appear white because their faces are black—as for instance, with negroes it is the mere contrast of the color of their skin. Notwithstanding, the latter possess good, handsome and strong teeth. Its use is utterly unclean. Cinchona is a torpid powder, but its taste and color on the one hand, and on the other its tanning principle, which at length make the enamel yellow, cannot recommend it as a dentrifice. It has, however, the property of hardening the gums. What I have said of cinchona can also be appied to tobacco.

Salt is by no means injurious, but it determines a considerable secretion of saliva.

Cigar ashes are also in use, that powder is very unwholesome—it is too strong an alkali. Alum, that substance which we can rank with tartaric and oxalic acid, are too strong powders, unless in order to use them we mix them with an absorbing substance having the property of neutrallizing their acidity. We must mistrust those patented liquids and powders, the pompous names of which fill the columns of our newspapers, ornament the corners of our streets, and are used as mile-posts on our country roads. Remember well, the action of these patented drugs is magic—it is exactly there where lies the evil, because the only dentifrices which can give quickly a shining white ivory-looking appearance to the teeth are acid. The calcareous phosphate, which is the base of the enamel, is dissolved, causing its polish to be removed, and the teeth thereafter are more liable to retain that kind of mucus which previously had a tendency to accumulate on them. They assume an indelible yellow tint, and if you continue to use those compounds, if the acids constituting their bases are too concentrated, they will soon uncover the gelatinous substance of the teeth, which will cause aching, caries, and their extraction will become unavoidable,

Yes, gentlemen, the first quality of a dentifrice is to clean the teeth thoroughly and without injury.

1st. "Whatever may be the mode of preparation of those tooth powders," says Dr. Maury, "we must exclude from their composition all substances liable to alter the enamel of the teeth, since those sorts of preparations are to be used only to maintain their whiteness by removing the tartar which gathers on them.

2d. "You must note their action on the gums." Are those conditions observed in the dentifrices offered to the public with the most pompous names? I entertain great doubts about that. It is a mere speculation now-a-days, and the voice of interest very often stiflles that of humanity.

This induces me to say a few words on an article which each of you, I am sure, possess—tooth brushes. Each hair of them may be considered as a tooth-pick, the daily use of the brush cleans the teeth and the gums, and saves them from many diseases. Brushes vary a great deal in their form, that is why you must choose them. For children they must be straight and very soft, for adults they must be so much the less hard as the gums are softer. For instance, if you select a hard brush you erase thus the enamel in some ways, you lacerate and bleed the gums, you uncover the non-enameled substances of the teeth, they will totter, sensibility will ensue, and afterwards the toothache.

An article everybody should possess is a tooth-pick. It must be used only when a few particles of food are driven between the teeth, which they annoy when they cannot be taken off in spite of the efforts of the tongue. That is the only circumstance when we can rationally recommend the use of a tooth pick. The teeth and gums should be tormented the least possible with that instrument or any similar object.

There is still another error which I must note. It is the use of the end of a penknife as a tooth-pick. By that process a few blades of the enamel are exposed to be cut off, and unfortunately those occurrences take place and caries, act in that place. Next, are you always sure that your knife is clean? This is again a very delicate matter, because while cleaning your teeth with that instrument you can wound the gums and bring on an inflammation. The best toothpicks are not made from gold, silver or steel, but those which are manufactured from quills.

Formerly sponge and cotton plugs were used for cleaning the teeth—this habit was far from being suitable for keeping the mouth clean—they had the same disadvantages as the linen of which I have already said a few words. Independently of the hygienic care required by the teeth, there are some other precautions to be taken in order to preserve the beauty and soundness of those organs, and those precautions consist in avoiding carefully all that is injurious or may become so. As there are many I shall select the most remarkable, and I will be as brief as possible.

1st. You must avoid washing your head in water too cold or too warm, using those astringent and caustic remedies to remove freckles, or dying the hair.

2d. Not to break with your teeth too hard objects, or cutting threads or any other thing with the *incisive teeth*, for they become notched and decayed.

3d. Never leave particles of food in these organs, nor use too hard dentifrice powders, or elixirs, tinctures too much acidulated.

4th. While eating, avoid taking food or beverages too warm or too cold, because the sudden transition between those two extremes is always injurious to the teeth. *Frigidus inimicum dentibus*, said Hippocrates with reason. When we smoke a pipe or cigar, the mouth is warmed, the larynx becomes dry, and then you drink—and even sometimes very cold water that may cause a slight inflammation of the dental pulp.

5th. Be very careful when drinking mineral waters, for they can irritate them, render them painful, make them turn yellow, and give them a dark covering.

Abstain from sweet things: a proof that they are injurious is that I have met in my practice, confectioners, still young, whose teeth were nearly all carious. Druggists come under the same heading, because frequently they are obliged to taste their preparations, acid or sweet.

A thing that is very often done and about which we are careless, is drinking in the same glass as another, or smoking from the same pipe—that is far from being clean. It occurs often that an impure saliva left on the edge of a glass, poisoned those who drank from it afterwards. Sailors are less particular when their officer calls them while they are enjoying a *chew*, they don't care about handing it to a comrade who masticates deliciously before returning it to its proprietor.

6th. Do not be great lovers of crackers and biscuits, they always contain acid powders. Americans have generally very bad teeth—we may say that they are the greatest biscuit eaters of the world.

7th. Abstain as much as possible from the use of gaseous waters, such as soda, which is relished so much in the hot season—it is acid, since it is composed from tartaric acid and bi-carbonate of soda. Ice-cream is also very injurious. As to myself I must confesss that I am a great lover of it; do what I tell you and not what I do, as a proverb says. Salads are unwholesome: notwithstanding, taken seldom and in small quantities, they can stimulate appetite and facilitate digestion.

8th. Feats of strength performed with the teeth are absurd; those who indulge in them ought to be punished like that youth, who, says Dr. Lemartie, broke all his front teeth who bet that he would throw over his head a chair which he held with his teeth by the upper part of the back board to achieve that noble feat. Another fellow, more imprudent, caused himself to be hoisted up from the ground to an window by means of a rope which he held in his teeth. When he reached a certain height he lost his four incisors and broke one of his legs in the fall. Some others, says the Doctor, find pleasure in grinding drinking glasses between their teeth and wounding their mouths grievously in the attempt—one would suppose that the life of these maniacs is a perpetual challenge to the Almighty who gave it to them. The loss of a tooth is a real misfortune since it cannot be repaired A tooth is worth a diamond says one of our authors. Remember these few word, gentlemen, and try to put them in practice, and when old age will come, your teeth will still be handsome. If you do the contrary your cheeks will sink in, your lips will lose their firmness and embrossment, your chin will be lengthened, wrinkles will cover your face as so many furrows, pronunciation will be difficult and unpleasant, the saliva, having no more dykes to contain it, will escape, and produce that unpleasantness which we hardly endure in old persons.

Before concluding, I must tender you my best thanks for your kind attention. I have endeavored as much as possible to be brief and varied, to avoid the aridity and monotony which are usually found in medical works, where one's health is treated in a grave and doctorial style; I am satisfied after saying only what could be useful. I will be doubly rewarded if I succeed in giving some credit to this essay, and in deserving a smile of approbation from those for whom I undertook especially to compose it.—*Canada Journal of Dental Science.*

ARTICLE X.

A Case where an Artificial Plate with False Teeth was Accidentally Swallowed, Dislodged, and Ultimately Passed by the Patient.

By Henry Smith, F. R. C. S.,

Assistant-Surgeon to King's College Hospital.

The interesting cases of lodgment of artificial teeth by Mr. George Pollock, and the extraordinary instance of the passage of a gold pencil case through the intestinal canal reported by Sir William Fergusson in the pages of *The Lancet*, must be familiar to the profession. To these I have now to add a case of much interest, where a very ugly foreign body, was got rid of safely, partly by the efforts of surgery and partly by those of nature.

On the night of November 30th, 1870, I was summoned to Mitcham by Dr. Hamilton, who had the wisdom to telegraph the nature of the accident; and I thus went down with suitable instruments. I found a corpulent butcher in great distress, he having six hours previously, by some means or other, allowed his false teeth, with their plate, armed with most formidable hooks on either side, to slip down his throat. He at once sent for Dr. Hamilton, who, on passing his finger down into the pharynx, could distinctly feel the foreign body on the right side; but, unfortunately, he had not the requisite instruments, and in his endeavors to dislodge it, the body got out of his reach.

On my arrival, the patient pointed to just above the clavicle on the right side as the spot where the intruder lay. I at once passed a long pair of crane-bill œsophagus forceps, and imagined I could feel the foreign body, but I could not catch it. I tried carefully again and again with other instruments; but, as considerable bleeding ensued, and as there was great distress on the part of the patient, I determined to push the body down into the stomach, and with that view passed a full-sized œsophagus bougie into the stomach, when the sensation of the presence of the tooth-plate at once ceased.

The patient was ordered to keep perfectly quiet, and to take plenty of gruel porridge and oil. He had no pain at all except for about five hours on the day the foreign body passed away, which event happened nine days after I had pushed it down. The patient has suffered nothing since.

I am aware that it is a dangerous practice to adopt the course I did in this case. I know of two instances where death followed this plan of treatment, one of them from hæmorrhage; but I am not sure that prolonged and forcible attempts to extract such a formidable-looking body would not be attended with as much danger; and there are so many instances on record where such ugly bodies have passed through the intestinal tract with safety, that the surgeon is quite justified in resorting to the expedient I adopted, providing he has first made an effort to extract the substance. The attempts I made were quite sufficient to tell me that I should not succeed in extracting the false teeth; and, indeed, I necessarily put the patient to so much pain and distress, and brought about so much bleeding, that I was only too glad to desist from further attempts. If these attempts do not succeed at once, they are not likely to succeed at all. Remarkable cases have occurred where such foreign bodies have been extracted, and, among others, one happened in the practice of Dr. Vine, who succeeded in extracting with a probang a plate armed with seven false teeth, an inch and three quarters in length, and which had become engaged in the lower part of the œsophagus.—*London Lancet.*

ARTICLE XI.

Paralysis Following Dentition.

George Hoover, æt. two years and four months, is a child very small, very short, and lacking power in his lower extremities. This child, according to the statement of the father, weighed eight pounds at birth, and seven and a half pounds nine months after; not much of a gain!

The child suffered from spasms when a year old. Its teeth, dentition being in progress at present, are in bad condition. Otherwise than I have mentioned the child seems well. His intellect good. How then can we account for its present helplessness? While we sum up the case we glean the following facts. This attack came on suddenly. The child was teething and during the day had seemed perfectly healthy. It awoke early the following morning with coated tongue, excessive thirst dry skin, and all the other attendants of high fever, *and was found to be unable to maintain itself upon its feet.* As the case unfavorably progressed the muscles became soft and atrophied, and ultimately underwent partial fatty degeneration. The legs became flabby and cold, but while the lower extremities were thus affected, the rest of the body developed itself as under ordinary circumstances.

The only way that such an occurrence can be explained, is, that the arachnoid, which is a serous membrane, surrounding the spinal cord, by reflex irritation from dentition, became suddenly congested. As a result of this congestion, fluid was effused upon the cord, and its gravitation pressing upon the lower portion, caused paralysis of those nerves distributed to the lower extremities. Now this fluid was more than simply serum, because serum would ultimately have become absorbed. Lymph or fibrin must have been effused, and by becoming organized, maintained its situation and thus kept up the paralysis. In order to relieve the existing trouble, then, supposing this explanation to be correct, the treatment should be only such as would remove the deposit.

We want, therefore, the application of sorbifacient remedies along the spine, such as the veratria ointment. Veratria is a powerful stimulant to the nervous structure, and mercury is likewise a good absorbent, by its action upon the absorbent vessels.

Such ointment, in combination with the hot and cold douche, should be continuously applied, twice daily, for a number of months.

Internally, we can give this child one-quarter of a grain of the iodide of potassium or sodium, in combination with the minute doses of the corrosive chloride of mercury, three times daily, being careful, however, when we use the remedy long, to have intermissions of three, four or five days in the treatment, according to circumstances, so that the stomach may be rested and not rebel against the remedy.

If the system is not well nourished, we can give three drops of the tincture of the chloride of iron, three times daily to a child of this age. It is a powerful tonic, increasing the coloring matter and fibrin of the blood. Huxam's tincture of bark and the syrup of the iodide of iron would also be good remedies in similar cases. The limbs should be thoroughly rubbed; flagellation would also be here indicated.

Notwithstanding what I have said, I am afraid the prognosis here is of the very worst kind.—*Surg. Clinic of Prof. Gross.—Med. & Surg. Reporter.*

ARTICLE XII.

Impaction of Molar Tooth in Left Bronchus, etc.

Dr. Weir presented a specimen, showing the impaction of a greater portion of the molar tooth in the first division of the left bronchus. The patient from whom it was removed was an inmate of St. Luke's Hospital. Some months ago, he sustained a compound fracture of the lower jaw, the result of a blow from an axe. The ordinary treatment was employed, but the union was very imperfect, owing to the impaction of some dead bone. It being thought necessary to remove the dead bone referred to, the patient, a stout pale Irishman aged forty, was etherized Jan. 3. He took the ether very badly. Enlarging the fistula which led to the dead bone, it was discovered that a sequestrum was attached to a molar tooth. The tooth was seized, and, in the attempt to withdraw it, the patient was seized with a vomiting-fit, and in the struggle the tooth being dislodged, disappeared. The material vomited was in the confusion thrown away by the attendant. Not being satisfied as to the whereabouts of the tooth, the house-surgeon was directed to watch the patient, and to have the fæces thoroughly examined. This was done with no result. There was no marked coughing, or evidence of irritation about the chest when the tooth disappeared. For some days after, the patient did not do very well, but this circumstance was attributed to the amount of blood lost. In the course of two or three days he had a slight attack of bronchitis, but on examination nothing was found. Under the usual treatment the symptoms abated. Nothing of special note occurred in the case until the tenth day after the operation, when the house-surgeon reported that with a persistent bronchial irritation, the patient had very feeble respiration of the left side. At times the inspiration over the left lung would appear to be suddenly checked, although expiration seemed at all times easy. A consultation having been called on another case, the gentleman present saw this one also. On examination no satisfactory results were obtained, save that the existence of pneumonia was recognized, the only thing peculiar about the case being a heaving effort at respiration to which attention was called by Dr. Sands. It was deemed advisable to perform tracheotomy as an explorative operation, and then attempt to dislodge the tooth if it could be reached farther down, thus repeating an operation of a similar nature so successfully performed by Dr. Buck. The patient however refused to have the attempt made, and died unrelieved.

At the autopsy the left lung was found the seat of red hepatization, and in the first division of the bronchial tube was found a decayed molar, the upper portion of which was hooked into the mucous membrane in such a manner as to preclude the possibility of its exaction from above in case the operation has been performed. About an inch below the point where the tooth was found, and adjoining the pleura, was an abscess filled with broken-down tissue, the whole being about the size of an English walnut; another, also of the same size, was found deeper in the substance of the lung.—*N. Y. Pathological Society. Med. Record.*

MONTHLY SUMMARY.

Effect of Inhalation of Oxygen upon the Pulse.—Dr. Andrew H. Smith recently read a paper before the N. Y. Medical Journal Association (*Medical Record*, Jan. 2, 1871, p. 481), giving interesting results of experiments with oxygen, eight gallons of which, on the average were administered to each person. The conclusion arrived at was that this gas is an arterial, or more correctly, a cardiac, sedative; the first step being a change in the blood, which facilitates its circulation and thus lessens the labor imposed upon the heart.

In 102 observations made upon 11 phthisical patients, the pulse was retarded an average of 10 beats per minute in 72 of these, was unchanged in frequency in 18, and slightly accelerated in 13. In 12 healthy individuals selected for experiment, in 8 there was an average fall of 9 beats, while in the other 4 there was no change. The sphygmopraph indicated a change also in the character of the beat,—the volume of the pulse being increased, probably on account of a greater time being afforded, by the retardation of the pulse, for the ventricles to become filled with blood, and an increased amount of blood being thus thrown into the arteries. An antagonistic effect of the gas upon the volume of the pulse is found in the fact that it acts upon the blood in such a way as to facilitate its flow through the capillaries, and, as one or the other effect predominates, the pulse becomes increased or diminished in size, or, if they are exactly apportioned to each other, no change of volume results.

Under the use of oxygen, dicrotism of the pulse was usually lessened, owing to the diminution of capillary resistance, and irregularity of the beat was generally overcome, at least temporarily.—*Medical Times.*

Treatment of Snake Bite.—Dr. J. Fayrer, who has tried more experiments with snake-poison than any other person, and had large experience in the treatment of snake-bites, has published in the *Indian Annals of Medical Science*, December, 1870, an interesting article on this subject, from which we extract the following summary of the treatment he advises.

Apply, at once, a ligature, or ligatures, at intervals of a few inches, as tight as you can possibly tie them ; and the one nearest to the wound tighten, by twisting with a stick or other such agent. Scarify the wound, and let it bleed freely. Apply either a hot iron, or live coal, or explode some gunpowder over the part; or apply either carbolic or some mineral acid or caustic. Let the patient suck the wound while you are getting the cautery ready, or if any one else will run the risk, let him do it.

If it be a positive bite on a toe or finger, especially if the snake have been recognized as a deadly one, either completely excise, or amputate immediately at the next joint. If the bite be on another part, where a ligature cannot be applied, or indeed if it be on the limbs above the toes or fingers, cut the part out at once, completely.

Let the patient be quiet. Do not fatigue him by exertion. When, or even before symptoms of poisoning make their appearance, give eau-de-luce, or liq., or carbonate of ammoniæ, or, even better than these, hot spirits and water. There is no occasion to intoxicate the person, but give it freely, and at frequent intervals.

If he become low, apply sinapisms and hot bottles, galvanism or electro-magnetism, over the heart and diaphragm. Cold douches may also be useful.

The antidotes, in addition, may be used by those who have faith in them; but, as I have said, I fear there is no reason to believe that they are of any use. Encourage and cheer the patient as much as possible.

As to local effects, if there be great pain, anodynes may be applied or administered, and antiseptic poultices to remove sloughs; collections of matter must be opened.

Other symptoms to be treated on general surgical principles.—*American Journal of the Medical Sciences.*

Mustard to Make Leeches Take.—"Having had occasion to order a mustard poultice for a patient, it became requisite to put some leeches on the same place. I was told that they fastened instantly, filled rapidly, and that the blood streamed afterwards into bread poultices as if it would never stop. I took the hint; and now, whenever I order leeches, I always have a mustard poultice applied first, then the leeches (two or three, instead of half a dozen,) and then bread poultices. There is less trouble for those who have to apply the leeches, far less annoyance. weariness, and exhaustion for the patient, and a much more satisfactory result. The flow of blood is, however, sometimes so much greater than would be thought likely or possible that I think it right to add a few words of caution. A few days ago, one of my patients, a young lady grown up, and of average strength, bled to fainting from only two leeches applied in this way.—*R. L.*, *London Lancet.*

A New Anæsthetic.—Dr. Liebreich, of Berlin, asserts that he has discovered a substitute for chloroform, the use of which is free from all the disagreeable sensations consequent upon the use of that drug. He calls it æthyliden chloride. It is a colorless fluid, of an agreeable odor and very volatile. Sleep suddenly overtakes the inhaler, and he wakens quickly and involuntarily, as from a natural slumber.

If this statement be true, Dr. Liebreich will prove himself one of the greatest benefactors of the human race that has lived. It were glory enough for one man to have introduced so great a boon as chloral hyrate.—*Med. and Surg. Rep.*

Earth Eating.—It is well known that, in different parts of the world, there are people who eat earth; among them are some of the natives of Java, who eat a red kind of earth as a luxury. This earth, which is soft and smooth to the touch, has been analyzed by a German chemist, who finds it very rich in iron, with a small quantity of potassa and soda. Some tribes eat earth to stay the pangs of hunger by filling their stomachs, and because at times they can get nothing better ; but the people in Java eat their earth, baked in thin cakes, as an agreeable variety in their general diet. The cakes when slightly moistened, are rich and unctuous, and the enjoyment in eating is supposed to consist in the sensation produced by a fatty substance. It is a curious fact in the history of human habits.—*Virginia Clinical Record.*

Spontaneous Combustion of the Human Body.—Mr. A. B. Flowers, of Alexander, La., writes us that the statement made in a recent article on this subject, to the effect that no one has ever witnessed a case of spontaneous combustion in the human body, is a mistake, as he was himself with several others, an eye-witness to a case of the kind. The person who was the victim was a hard drinker, and was sitting by a fire, surrounded by Christmas guests, when suddenly flames of a bluish tint gushed from his mouth, and he was soon a corpse. The body, he states, remained extremely warm for a much longer period than usual.—*Scientific American.*

Safety of Hyperdermic Injections.—Dr. Charles Hunter, who was largely instrumental in introducing the use of the hyperdermic syringe, declared lately, in the London Clinical Society, that, speaking from an experience of nearly two thousand cases annually, he saw no risk in the system of hyperdermic injection, whither there was evidence of heart disease or not. He adds, "Care should be used at the first injection in looking to the state of the kidneys. It was possible that tetanus might result from puncturing a nerve, but he had never seen it."—*Pacific Medical and Surgical Journal.*

Treatment of Enlarged Tonsils in Children.—Dr. James Martin states that an eminent Dublin practitioner finds the sulphate of potassa, administered daily for a month or six weeks, almost a specific for enlarged tonsils in children. From five to fifteen grains are given every morning with a small quantity of rhubarb and aromatics. The dose should produce mere laxity of the bowels, and must be diminished if it causes purging.—*Druggist's Circular.*

A Pleasant Remedy for Sea-Sickness.—There have been many suggestions made as to the prevention of sea-sickness, none of which have, to say the least, been found completely successful in practice. The introduction into practice of hydrate of chloral, which produces with certainty sleep for a definite number of hours, has suggested the means of escaping the horrors of a short sea passage at least, and possibly of mitigating the most prolonged horrors of sea-sickness. To go asleep at Dover, and wake to find one's self Calais, is a plan which, failing other expedients, has in it much promise. An ordinary dose of hydrate of chloral produces sleep usually in a quarter of an hour, and with almost unfailing certainty. Some cases just published by Dr. Doring, of Vienna, seems to show that the value of hydrate of chloral to obviate sea-sickness is very great, It produces quiet and prolonged sleep. In all the instances recorded, it seems to have been of great value, even during prolonged sea voyages, giving good night's rest, arresting violent sickness when it had set in, and stopping the tendency to its recurrence.—*British Medical Journal.*

New Plastic Material.—A beautiful plastic substance which the inventor has given the somewhat pretentious name of artificial ivory, can be prepared by mixing collodion with phosphate of lime. The phosphate should be pure, or the color of the compound will be unsatisfactory. On setting, the mass is found to be hard and susceptible of a very fine polish. The material can be used extensively, applied in modes that will suggest themselves to any intelligent artist, to high class decoration.—*Dental Advertiser.*

Cheap Retort.—A writer in the *British Journal of Dental Science*, says: "When first we commenced to make gas, we used the large glass flasks sent with the apparatus, costing about three shillings apiece. A box full of broken glass testifies to the persevverance and constant mortification under this regimen. All kinds of flasks and retorts, stoppered and plain, were tried, but all proved fragile. Now we use a common stone-ware gallon beer bottle, price four pence; put in the nitrate, and when thoroughly warmed and hot, by raising the heat slowly we find a cheap substitute."

Ether Spray in Ulcers and Cutaneous Affections.—M. Peuch, a distinguished French vetinary surgeon, quoted by the *Lyon Medical* from the *Jou.. de Med. Vet de Lyon*, has used the ether spray with marked success in ulcers and divers cutaneous affectins in the lower animals. Crusts, where they exist, are detached by the retraction of the subjacent tissues, the distressing itching of certain lesions is at once allayed, and an exposed surface is dried by the rapid evaporation without the irritation caused by the atmospheric air. Complete congelation is not sought, and in the case of said surfaces, the spray is used only until the deep red of the tissues is reduced to a pale pink. Under these conditions, M. Peuch asserts that spray is a most valuable cicatrizing agent in wounds and ulcers, more especially those of an indolent nature. The experiment may be worth a trial in the human subject, as we have no very satisfactory, means of either allaying itching or healing chronic ulcers.—*Naitonal Medical Journal.*

Sulphur in Croup.—Dr. Lanini, in *Lo Sperimentale*, of Florence, of December, 1870, writes that he has treated membranous croup successfully with powdered sulphur, in doses of a scruple every two hours. He reports a case occurring in a girl of eight years, where all other remedies with which he was acquainted had failed to give relief. After the second dose of the sulphur, the dry cough was diminished, and she soon began to expectorate casts of the bronchial tubes, some of which were nearly an inch in length. The treatment was continued two days, and the patient did well. The doctor was induced to try the remedy in consequence of the experiments and recommendations of Dr. Banieri Bellini, Professor of Toxicology in the Royal Institute at Florence, published in the September number of the *Sperimentale* of 1869.—*Med. Record.*

Creasote in Mercurial Salivation.—This is a very old but very efficient remedy: Caeasote ʒ ss; Sage Tea, one pint, to be used as a gargle every hour, for one or two days. Keep the bowels soluble by the use of saline aperients.—*Oregon Medical and Surgical Reporter.*

Maggots in the Ear.—Dr. C. Robertson, of Albany, N. Y. (*Buffalo Med. and Surg. Jour*), at the December meeting of the Albany County Medical Society, spoke of the case of a lady, who, while on a pic-nic, heard a fly buzzing about her ears, but did not think of the circumstance again until after the lapse of a few days, when she felt some irritation in one ear. When consulted, Dr. R—— removed some parasites with aural forceps, which had penetrated beyond the membrana tympani. Sweet oil was poured into the ear, which was retained for awhile; shortly, one came to the surface, apparently searching for breath; this gave relief for ten minutes. More were observed, which were extracted with forceps. The after-treatment consisted in syringing the ear with warm water. The opening of the tympanum closed, and her hearing became perfect.

Abstinence Extraordinary.—There are few things too miraculous for the simple medical faith of the rural press; and the latest evidence of credulity in this respect is a recital of the case of a reverend gentleman in Bennington, Vermont, who, under the advice of his physicians, abstained wholly from food for thirty-five days, since the expiration of which fast his entire sustenance has been one ounce of biscuit and two ounces of apple daily. The tendency of the clergy to commit suicide or homicide with therapeutic intent, is well known to us; but, irrespective of the impossibility of surviving such a fast, it is quite beyond belief that any "physicians" should recommend starvation as a remedial agent.—*Med. Gazette.*

The Title of "Doctor."—"The title of 'Doctor' was invented in the twelfth century. Irnerius, a learned professor of law at the University of Bologna, induced the emperor Lothaire II., whose chancellor he was, to create the title, and he himself was the recipient of it. He was made doctor of laws by that university. Subsequently the title was borrowed by the faculty of theology, and first conferred by the University of Paris on Peter Lombard. William Gordenio was the first person upon whom the title of doctor of medicine was bestowed; he received it from the College of Asti, in 1329."—*Medical Gazette.*

EDITORIAL DEPARTMENT.

Dangerous and Fatal Results from Hydrate of Chloral.—As this agent is extensively used in dental as well as surgical practice, something may be learned from the following article in the "London Lancet," by Dr. H. W. Fuller, senior Physician to St. George's Hospital:

As the hydrate of chloral is being largely administered as a sedative hypnotic, and is often recklessly employed in excessive doses, as if it possessed no noxious properties, it may be well to record a few cases in which moderate doses were productive of dangerous and even fatal results.

On Feb. 9th, 1870, J. S.——was admitted under my care in St. George's Hospital, suffering from slight anasarca and bronchitis connected with chronic Bright's disease. He was restless and nervous and unable to sleep, and therefore, after he had been some days in the hospital, and was exhausted for want of sleep, I ordered the chloral draught of the hospital—containing thirty grains of chloral—to be taken at bedtime. Soon after he had taken it he jumped up in bed, clutched at his heart, and complained that the medicine produced a sense of burning. In the course of few minutes he became violently delirious, and though after a time the delirium subsided, so much depression ensued that Dr. Jones, our resident officer, had great difficulty in sustaining his heart's action. Gradually, however, the heart recovered itself, the pulse returned at the wrist. and in a few hours he was out of danger.

Having just read Mr. Liebreich's assertion that hydrate of chloral, when in contact with an alkali, is transformed into chloroform and formic acid, it occurred to me that the extraordinary results witnessed in my patient's case might be attributable to an alkaline condition of the stomach, whereby the chloral was at once converted into chloroform, and thus induced the symptoms which were observed. I therefore determined to try it once again, taking care on this occasion to guard against such an occurrence by administering the chloral in combination with a full dose of acid. The result, however, was precisely the same as on the first occasion. Again there was the same sense of burning and oppression at the chest, followed first by violent excitement and delirium, and subsequently by collapse with failure of the heart's action; and on this occasion, as on the last, Dr. Jones was long doubtful whether the man would recover. I need not add that I did not make trial of a third dose, even experimentally.

From that time until the first day of the present year I did not meet with any case which led me to question the harmlessness of chloral. I had given it to hundreds of patients in doses varying from ten grains up to forty-five grains, and had been called into consultation to two patients, one of whom had harmlessly taken two drachms and a half, and the other three drachms, in the night prior to my visit. In some instances it failed as a hypnotic; in some it produced headache; and in others it gave rise to more or less excitement; but in none was it followed by any symptom calculated to cause alarm. On the 1st of last January, however, I was called in consultation to see a case in which thirty grains of the hydrate of chloral proved fatal The patient, a young lady aged twenty, who was previously in fair health, complained on Dec. 26th of costipation and other symptoms of stomach derangement, for which her medical attendant administered a pill at night followed by an aperient draught in the morning. On the 30th the bowels acted, and she was relieved; but she passed a restless night, and on the 31st, complained of uneasiness in the lower part of the abdomen, which was attributed to the approaching menstrual nisus. As she was very hysterical, a neighboring practitioner was sent for early, and when he met the family medical attendant in the afternoon, they determined, as she was nervous and restless, and had obtained little or no sleep on the previous night, to give her thirty grains of chloral. She took the dose at ten P. M. on the 31st, and almost immediately became much excited and complained of pain in the chest. In about an hour the excitement passed off, and she fell asleep and slept heavily all night. In the morning she was sleeping so heavily, and looked so pale, that the family became alarmed, and sent for the genteman who had seen her the previous day. When he arrived she was very pale and breathing heavily—a sort of deep sighing respiration; there was no pulse at the wrist, and her extremities were rather cold. It was impossible to rouse her in the slightest degree. He gave her stimulants and applied warmth to the extremities, and gradually the pulse returned at the wrist, though at the best it was only just perceptible. The family medical attendant subsequently met him in consultation, and together they did all that appeared expedient; but as every thing failed to rouse her, or in any way to alter her condition, they asked me to meet them in consultation at 2 P. M.

When I saw the patient she was lying on her back, with her eyes closed, and breathing heavily, the respiration having a distinctly sighing character. She was very pale, and somewhat cold; the skin was dry; the pupils were large and dilated, but acted sluggishly under the influence of a strong light; the pulse was scarcely perceptible, but the heart was beating regularly, about 120 in a minute, and though its action was very feeble, its sounds were clear and its rhythm was normal. There was no distension of the abdomen—indeed, it was flat and soft;

there was no contraction or rigidity or undue flacidity of the limbs. It was impossible to rouse her in the slightest degree ; but when fluid was put into her mouth she swallowed without much difficulty, so that she took a full sized wine glassful of brandy and water in the course of ten minutes.

The indications for treatment being obviously to snstain the heart's action until the effect of the chloral had passed off, we determined to give her brandy and diffusable stimulants as far as possible by the mouth, and to supplement our efforts in that direction by repeated injections up the bowel of strong beef-tea and brandy. However, everything proved unavailing. She continued in much the same condition until about 9 A. M. the following morning, when she sank, without having exhibited the slightest consciousness or moved a muscle from the time she fell asleep on the evening of Dec. 31st.

Judging from what I have learned from various members of our profession, I believe that although fatal consequences may rarely follow a dose of thirty grains of the chloral hydrate, yet that unpleasant, if not dangerous, symptoms are not unfrequently experienced. Dr. Tuke informs me that in a man whom he treated, who was suffering from the effects of intemperance, thirty grains very nearly proved fatal, the symptoms of depression and failure of the heart's action being most alarming; and Mr. Fred. Webb, of Maida-vale, has given me the particulars of another case in which an elderly man very nearly lost his life from the effects of thirty grains. The faintness, pallor, and depression of the heart's action were excessive, and for some time Mr. Webb was in doubt whether he could be able to sustain the pulsations of the heart until the effects of the chloral had passed.

Doubtless these cases are quite exceptional, and are met with only in about the same proportion as cases of death from the administration of chloroform. But the facts I have cited are sufficient to prove that such cases are more frequent than is commonly supposed. Further, they inculcate the necessity for caution in the administration of the drug; and they point to the conclusion that thirty grains form too large a dose for ordinary use, and especially for a patient in whom the effects of the chloral have not been previously tried. As a hypnotic in nervous restlessness, ten or fifteen grains ordinarily prove efficacious ; and I have not seen or heard of any unpleasant symptoms following these doses. But the cases above recorded prove that larger doses, though usually harmless and often marvelously efficacious, are not unattended with danger; and now that the public are beginning to dose themselves with chloral, as they have done of late years with chlorodyne, this important fact cannot be too widely known.

Dental Items.—We have received another beautiful specimen of calcified pulp, from Drs. Story and Watkins, of Eutaw, Alabama, which, as Dr. S. writes, "still retains its position in the cavity, with the roots united by the depositing of the same osseous matter—this I have often seen before but the pulp in a similar condition never—and it may prove a subject of much interest."

We shall soon have a large and beautiful collection of this pathological condition of tooth-pulp in the museum of the Baltimore College, and feel very grateful to our friends for their kindness in forwarding interesting specimens of dental anomalies.

In the "Dental Office and Laboratory" Dr. W. C. Wren gives the following method of working Pyroxyline Base:

"You get up dies the same as you would for a metal plate. The only extra tools you require is a press—an ordinary letter press will do.

"Having your dies made, you heat them, and the best way to heat them is to put them in boiling water. Then place the plate of pyroxylene between the dies and swage it home in your press. You may split some plates at first, but a short experience will teach you. After you have swaged the plate home, you want to let it remain in the press until cold; then take out and trim to size and shape.

"The pyroxylene plate can be altered or bent slightly with a pair of plyers, just the same as a gold or silver plate.

"After you have fitted to the mouth and ground the teeth to it, you take a quantity of filings of the material and place the filings around the teeth outside where the band would come on a gold plate. The filings should be wetted with a solution composed of two parts ether and one part alcohol, which will dissolve them, and unite them to the plate. Put a quantity on the outside, if too much, you can easy file off when hard. As soon as the filings are put on the outside, cover up with plaster to keep the teeth in place. When the plaster is hard, remove the wax perfectly. It can be done by putting the work into clean boiling water. After the wax is thoroughly removed, place the filings around the pins of the teeth. Put a little on at a time, being careful to separate as it dries between each pin, and from the plate, so that the filings as it shrinks, will cling to the pin. After the pins are covered and dry, commence to fill any spaces there may be between the plate and teeth. Do it gradually, and push it down hard with an instrument. Keep filling until you have as much material as you want around the inside of the gums. When it is thoroughly dry, you can scrape and polish if necessary. If your dies have been smooth, and you have manipulated right, no polishing is necessary.

Keep the plate on the plaster until you put it in the mouth.

The best way to make the filings is to take the pieces you cut off the plate, and file with a coarse file as you want them.

The material is very light, and as the saying goes: "an ounce makes a pound."

In the *Canada Journal of Dental Science*, Dr. Beers gives the following account of inferior central incisor teeth at birth:

"The teeth were to all appearances as perfect in shape as temporary incisors ever are, and abundantly supplied with good enamel. As might be expected, they were slightly loose, but had the feeling under the finger, and, from what could be determined by observing the gum opposite them, of having some attachment to the socket; and I felt assured that the fangs were formed, though not fully, and that the original fibrous septa had ossified and become sufficiently firm and high, to give comparative solidity to the teeth. I hardly supposed that the fangs were as *fully* formed as they would be at the normal period of eruption;—that they had shared in the premature calcification and development of the crowns; because the cementum is the last tissue of the tooth formed. On the other hand, the question arose as to whether or not the calcification and growth of the whole tooth had not been facilitated by the early emergence of the crown through the gum; and again, if it might not be possible that the premature eruption of the crown was actually by a premature calcification of the fang, as the eruption at the regular period is generally believed to be the consequence of the increasing size of the fang pressing the tooth upwards, and absorbing the gums. As a rule, the cellular tissue or gums of the child are firm, and of a cartilaginous consistence at time of birth, and the eruption of the teeth at the seventh month is attended with various slight and critical derangements, either a direct consequence of this normal physiological developement, or connected with the irritation common about the time of the protrusion. Now, of course, there must be considerably greater resistance in the gums at the seventh month, than in embryo, and the counter pressure exerted upon the incompletely ossified pulp would excite a degree of irritation, which would be altogether absent and avoided in premature eruption; and the sympathetic excitement of the emergence of the lower incisors, at the tenderest age, would be escaped by the child, to its advantage, I believe. Here, in the case I describe, the saccular stage had terminated and the eruptive had occurred when the child was in embryo, whereas, according to the normal period, the teeth should at this time have been in the saccular stage, and the eruptive should not have taken place until about the seventh month. The teeth were allowed to remain, and are now perfectly firm and wholly erupted, a simple cap of gutta-percha, underneath, of which was tied a piece of rubber tubing, preventing the mother's breast from suffering from their pressure while the child was suckling."

Cases of swallowing artificial teeth on plates, are becoming quite common in England. The "London Lancet" of May 13, contains an article from Dr. Jno. Matthews, which is of interest as the details are given of the the operation for the removal of the artificial teeth from the œsophagus:

On the night Sunday March 26th last, I was called up at 1.30 A. M. to see Mrs G. J.——The messenger only waited to say that she was choking and ran off On arriving at the house, I was informed that the family had been aroused by the screams of the sufferer, who was liable to frequent epileptic fits. On reaching the bedside, she was found clutching at her throat, laboring for breath, and partially unconscious, having evidently just had a severe attack. She could not swallow, nor speak much above a whisper. It was then observed that a plate holding six artificial teeth, known to be in her mouth when she went to rest, had disappeared. As it could not be found anywhere, the inference naturally arose that she had swallowed it during her fit; but of this we were uncertain, since she often misplaced or hid articles of dress, ornaments, &c., during the half consciousness succeeding her attacks.

I immediately introduced a finger as far as possible down the throat, but could feel nothing, although it reached below the glottis. The patient was so much distressed by this that I only repeated it once with a finger of the other hand; but to no purpose, nor could any prominence be felt externally. In the absence, therefore, of absolute proof that she had swallowed the teeth, I thought it might be an aggravated case of histeria or epileptic spasm of the pharynx; and having prescribed accordingly, left her for a few hours, enjoining a more careful search for the missing teeth. On visiting her at 10 A. M. on Monday, I found matters *in statu quo*. She had not been able to swallow either food or medicine; but the dyspnœa was not so severe. I then explored with both fingers; but to no purpose, and left, expecting that if the plate were there it would slowly find its way into the stomach. At 2 P. M. no alteration; teeth not found. I then proposed a consultation with Mr. Holmes Coote; and he accordingly saw her at 6.30 P. M. He also was in considerable doubt as to whether the teeth were there or not, since he could not feel them either by the fingers or a pair of long forceps which he brought with him. I may add that our efforts were seriously impeded by the streuous resistance of the sufferer, especially with Mr. Coote; and she finally declared that she would not suffer him to touch her any more, otherwise I have no doubt that he would have relieved her. We then left, having directed a dose of castor oil to be given in the morning.

On Tuesday morning I visited her. The castor oil ordered could not be taken, and she was still in so much distress that, after a gentle remonstrance, she promised to be more submissive to further exploration. This I attempted still with the finger, feeling sure that the obstruction was within its reach, if her description of her suffering were accurate as to place. On this occasion the left finger went further than before, reaching about an inch below the glottis (I had previously used the right finger without success); and I then had the satisfaction of feeling with my nail the edge of the plate. The patient was gasping for breath during this proceeding; I therefore removed my finger, and after a brief interval reintroduced it, sliding down at the same time, close to it, a pair of polypus forceps, by which I was able to grasp the thin edge of the plate, which was lying with its long axis transversely, its hollow closely applied to the back of the trachea, the teeth downwards. Finding it immovable except by much force, and unwilling to risk laceration of the œsophagus, after another brief interval I once more inserted the left finger and forceps, grasped the plate, and then slid the forceps to its other end, so as to tilt it by the aid of the finger, when it was at once easily extracted. All the symptoms were of course immediately relieved. There was very little, in fact scarcely any, bleeding; and in two days the patient was as well as usual.

I have been asked why I could not at once feel the plate with the finger, I did not explore with a bougie or a probang. My reply is—1st, that I never use an instrument when there is the least chance of a finger being successful; 2nd, that I had reason, as I have before said, to believe that it would prove to be within reach when the sufferer was quieter; 3d, that I always found the glottis so open that I should very likely have pushed such an instrument into it; and, lastly, I did not like to run the risk of pushing the plate down into the stomach. I cannot help thinking this last likely to be a very dangerous event or proceeeding, not only from the probability of laceration of the œsophagus by the angles and edges of so large a foreign body, but still more from the chance of its producing a fatal intestinal obstruction, not to speak of the very great anxiety of mind inflicted on all concerned until it shall have passed, if it eventually do.

I think we may learn from this case not to give up an apparently hopeless effort too hastily, and that epileptics should not wear artificial teeth when going to sleep or at night, or indeed at any other time, unless properly secured from displacement.

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ARTICLE I.

*Dentistry.**

By PROFESSOR P. H. AUSTEN.

Dentistry is the Science and Art of Medicine, applied to the Dental Organs. Placed at the beginning of the alimentary canal, these organs hold an important relation to the digestive function, and through it to the entire body. They have also inseparable connections with the nervous, circulatory and respiratory systems. Hence, whilst their preservation constitutes an important art in medicine, the Science which teaches their structure, functions, diseases and treatment must necessarily be comprehensive. It must include those sciences which lie at the foundation of all medical art, and embrace so much of physical, mechanical and æsthetic science as its specific duties demand.

The Anatomy, Physiology and Pathology of dentistry differ in no respect from that taught in medical schools. The limits of a special text-book or curriculum of study, or a curtailment of the term of preparation may require the omission of some details, to give opportunity for a full exposition of others; but a dentist's knowledge of these fundamental sciences admits no limitation, except that imposed by mental capacity. A single volume upon the "Principles and Practice of Dentistry" must of necessity be rigidly eclectic in those sciences, each of which occupies many volumes for its full exposition; whilst it must give, in complete detail, all applications of science to its specific duties. Again, the eclecticism of teaching, both in the office and the college, is dependent upon the time over which it extends. Thus neither printed, oral, nor demonstrative systems of instruction can be taken as any correct measure of the amount of knowledge essential to professional excellence; for, in most cases, the knowledge thus gained is insufficient to give full value to the subsequent lessons of experience. The problem of professional education is one of difficult solution. While European systems seek to make "experts" of students, American systems are content to make them "experimenters." The Old-world regards three or four years of extra study a small matter, compared with the lives and welfare of the community: the New-world considers any risk preferable to such delay in entering upon the practical duties of life.

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* This article forms the introductory chapter of the new edition of Harris Principles and Practice of Dentistry about being issued by Lindsey and Blakiston, and is published by permission.

The Therapeutics of dentistry, unlike its anatomy, physiology and pathology, differs from that taught in the medical schools. It is Medical, Surgical and Prosthetic. In so far as it is a direction of medical science to the prevention, modification or removal, by medicinal and hygienic remedies, of the causes and effects of disease in the dental organs, it forms a part of a physician's practice, just as does the treatment of cerebral, cardiac, or pulmonary disease. In so far as it is an application of surgical skill to the extraction of teeth, the removal of tumors, to the treatment of fractures or to staphyloraphy, it is simply Oral surgery, involving only such knowledge and skill in the use of instruments as every surgeon must possess. But dental therapeutics includes a class of operations not taught in medical schools and not practised in the offices of physicians or surgeons: which, for their successful performance, require surroundings and appliances such as no other class of operations call for; demanding also an amount of time and special experience, which it is impossible for the general surgeon to devote to any one part of the body. Hence, by universal consent, this branch of therapeutics, under the name of Dental Surgery, is assigned to a special class of practitioners, who, like the oculist and obstetrician, perfect their art by limiting the sphere of its duties.

The prevailing and distinguishing feature of dental therapeutics is Prosthetics—the art of replacement: replacement of dental *structure*, in such manner and with such material as shall prevent further action of the destructive agencies; replacement of dental *organs*, by substitutes which shall physiologically restore impairment of function and æsthetically restore the natural expression of the face. The medical therapeutics and oral surgery of dentistry are insufficient to establish it as a distinct branch of medical art; whilst the operations of filing and regulating the teeth form a small proportion of its specific duties. It owes its extent to the universal liability of the teeth to decay and loss; it owes its difficulty, as an art, to the complex nature of the methods by which this loss and decay must be remedied. In other words Prosthetic Mechanism constitutes by far the largest and most difficult part of dentistry, makes it a distinct branch of the art of medicine, and gives to it the power to add as it does to health, comfort, and the enjoyment of life.

The physician, surgeon and dentist have necessarily many practical duties in common; but each has a clearly defined limitation of sphere, requiring specific direction of that general culture which all must possess. The Physician is a specialist; for, although he treats diseases which affect more or less the entire body, his therapeutics is restricted to hygiene and the materia medica, and there are many accidents, defects and pathological conditions, which are beyond the reach of his skill. Moreover, the Physician's specialty tends constantly to subdivision; nor do we look for the most valuable contributions to medical science, except from those who apply themselves exclusively to some one class of diseases. Few minds can even approach that universality of genius, which characterized Hypocrates and John Hunter: hence devotion to a specialty of medical art detracts nothing from the position, which a man's education and talent entitle him to assume.

The Surgeon is a specialist, although few confine themselves to a practice purely surgical, except in cities and hospitals. Richerand correctly defined the specialism of surgical therapeutics as the "*quod in therapeia mechanicum:*" its well-known etymology conveys the same idea. Yet the element of mechanism and the necessity for the exercise of "hand-craft" enter, more or less, into all physical sciences. Astronomy, chemistry, pharmacy, microscopic analysis and modern medical diagnosis demand extreme accuracy of manipulation; and all great discoverers in these sciences display the ability, not only to use, but also to invent and construct apparatus. The universal recognition of the great value of this element in every department of Physics has given the scientific world a more correct idea of the true dignity of high-educated mechanical skill—skill, without which the physician's art is crippled, surgery becomes impotent and dentistry has no existence.

The two departments of dental prosthetics, Structural and Organic, are usually classified as Operative and Mechanical dentistry. We have given preference, in this work, to the terms dental Surgery and dental Mechanics. Another classification is dentistry of the Chair and dentistry of the Laboratory. Each of these three classifications indicate prevailing characteristics, but all fail to point out the true basis both of the unity and the diversity of the two branches of dental practice. The editor does not feel at liberty to deviate, in the present volume, so widely from the author's arrangement: yet he may here suggest the following classification of dental therapeutics, or the Art of Dentistry. I. Medical. II. Surgical: (1. Oral surgery; 2. Dental surgery.) III. Prosthetic: (1. Structural; 2. Organic.)

As medicine and surgery are combined in the practice of the majority of medical men, so the two classes of prosthetic mechanism are usually practised together: but such practice, although, in a large number of cases, unavoidable, does not tend to the developement of highest excellence in either department. Certain details of the laboratory unfit the hand for some of the more delicate operations of structural prosthetics; whilst the engrossing and more remunerative duties of the chair almost inevitably lead to a hasty and negligent performance of laboratory work. The usual method of meeting this difficulty, that is by dividing the duties of organic prosthesis, cannot be too severely condemned. It is like requiring an artist to paint a correct portrait from verbal descirption: it ignores every principle of dental æsthetics, and its results are artificial dentures, so devoid of expression and individuality, as to mar the features they intended to adorn. But the prosthetic character of dentistry subjects it to a danger more serious than this unwise division of inseparable duties.

Scientific mechanism implies not only skill in construction, but judgement and purpose in application. Unfortunately a few months' use of tools enables one, who has natural aptitude in handling them, to producespecimens of workmanship, which are accepted as evidence of peculiar fitness for dentistry. If no early education has given habits of study, the fascinations of hand-work are permitted to engross time, that should be given to the harder and more distasteful head-work. The training, thus commencing and ending in mechanism, is discreditable not because of its mechanism, but because, being one-sided and partial, it necessarily fails to accomplish that which it promises. Such training may make dental laborers, tradesman, or artisans; but never dental artists, or scientific mechanicians: nor can the dentistry which they paactice be, in any respect, identified with that which we have defined as a branch of the art of medicine.

A preparation begun in pure science may end in correct practice, and the early habits of student-life may follow the professional man throughout his career; but a preparation, begun in practice will end there. The routine of professional duties often tempt the scholar to sink into the mere practitioner; it is rare indeed that one reverses the order of nature and sets aside the claims and emoluments of practice, to acquire slowly those habits of study so easily learned in youth. It requires the broadest literary and classical education of boyhood to counteract the necessarily narrowing influence of the professional studies of manhood; and it demands the largest possible infusion of purely scientific teaching, during professional pupilage, to correct the matter-of-fact influence of practice. In this lies the great error of American practical systems of education. They teach boyhood to take a utilitarian view of every lesson learned, and encourage young men to neglect studies in which they cannot see some prospective pecuniary value. It is the application to science and art, of that philosophy of life, which subordinates mind and body to the one idea of making a living; that spirit of trade, which regards classical study a waste of the years, in which plastic youth can best be moulded into the mercantile idea of Profit and Loss. Limitation, first in the amount of mental culture, secondly in its direction, is thus made to combine with the inevitable influence of all exclusive pursuit, whether as science or business; the result is a rapid increase, in all professions, of men whose vision is limited by the narrow horizon of their special occupation, and who possess none of the large-minded liberality, which is the outgrowth of a generous education. It is by such early restriction of thought and action within the narrow grooves of life's future pursuits that a merchant so often loses all power to enjoy the fruit of his toil, a physician is unknown beyond the sick-room, a surgeon contributes nothing to the cause of science, and a dentist holds no social position. This inevitable tendency of purely practical education was recognized by Lord Brougham when he recommended *Dante*, as a text-book, to an inquiring student of law.

The antagonism of trade and pure science is seen not only in the result of attempting to make all education utilitarian. It appears whenever, in professional life, the laws of barter come to be applied to brain-work and its products. Mercantile relations of cost and price are capable of definite adjustment, when applied to commodities of known values, enhanced by labor at given rates; there are data also, upon which the speculative fluctuations of prospective supply and demand are based: so that in all bargains, buyer and seller may stand upon the ground of equal ability to judge these questions. But professional service is amenable to no such standard: the client cannot estimate the cost of his lawyer's pleading, nor can the patient know, until long afterwards, the full value of his physician's prescription. The conditions of honest barter are absent, for client and patient are alike dependent upon the integrity of the professional man; hence professional bargaining is dishonorable, and inevitably leads to the rendering of a disreputable grade of service. The common practice of valuation by the visit or the hour is so manifestly unequal in its working, that it is only another proof of the impracticability of measuring science and art work by commercial standards.

The medical fee is a valuation of thought and skill, exercised for the preservation of life and health. On the part of the patient, it is considered a gratuity, by those who fail to perceive the elements of cost in such work; a compensation by those who recognize an equivalent received; an acknowledgement, by the few who refuse to believe that money can adequately reward such service. Viewed from the professional side, the fee has nothing to do with the quality of the service, nor does it enter into the mind of any right-thinking man, whilst rendering it. Mr. Ruskin says with great truth "it is impossible for a well-educated or brave man to make money the chief object of his thoughts; yet a healthy-minded man enjoys the honest winning of money, and will insist upon a fair valuation of his work. But with all brave men, the work is first and the fee second; whilst there is a vast class, ill educated, cowardly, and more or less stupid, with whom the fee is first and the work second."

All professions have suffered much by this perverted application of mercantile law to professional fees; but none so severely as dentistry. This is due to the prevalent idea, that the gold filling and the artificial denture are as legitimate objects of barter and contract, as any other tangible article of manufacture: whereas, in reality, they are no more so than the surgical operation, or the medical advice. When the dentist forsakes the vantage ground of a professional fee for, "services rendered," and condescends to bargain for the definite products of his skill, he at once destroys the professional character of his position. Not only does he lose caste; but in the class to which he has descended, the question of price invariably leads to considerations of cost, and the quality of his work, slowly perhaps, but surely deteriorates. The disastrous influence of vulcanite abundantly proves that, when cost of material is permitted to enter as an element in determining the value of scientific art-work, it inevitably degrades it; and the entire history of prosthetic dentistry shows that competition in price (the development of Mr. Ruskin's " fee first and work second") is fatal to all progress in art or advancement in science. The results of such competition are, to honest men, a life of slavish toil, with no time for self-improvement; to others, a deliberate slighting of work which destroys all the nobility of a man's nature. Dentistry, thus learned and thus practised, has no just claim to be called a profession; it has neither the liberality, generosity, nor culture, which men are accustomed to associate with professional life; and its pretentious claims serve only to call to mind the satire of Juvenal, "Scire volunt omnes, mercedem solvere nemo."

Dentistry, as a true science and art, is built upon the foundation of a generous early education, is enlightend by a complete medical course of instruction, is specially trained by a full term of practical pupilage, and recognizes no sliding-scale in the quality of the service it renders. Such dentistry will exercise influence in its own, and command respect among kindred, professions; for it becomes thus a curative work, second in importanceand extent of its usefulness to no specialty of the great Art of Healing.

ARTICLE II.

Case of Necrosis of Portions of Maxillary Bones, caused by Excessive Salivation.

By S. P. Cutler, M. D., D. D. S.

Read before the New Orleans Dental Association.

A beautiful little girl five years old, called for the purpose of having some teeth removed that were loose from salivation. Her father had taken her to an occulist to have the remaining eye treated, one having gone out from the disease; the occulist thinking the teeth had some connection with the eye thought they had better be taken out.

The father said the child had pneumonia, that the physician had given her three 5 grain doses of calomel which operated favorably; but in the course of three or four days profuse salivation set in, attended with severe swelling of the whole mouth, the inflammation extending to the right eye causing the ball to finally burst and discharge the humors. This happened about three months before I saw the case. The inflammation had subsided entirely, only what remained in consequence of the loose pieces of bone. The left eye was becoming slightly milky in appearance, owing no doubt to the irritation from the diseased bones of the mouth.

On examination, I found the lower molars and cuspid of the right side loose, and evidently portions of bone. I at once took hold of the loose tooth with my thumb and finger, and removed the two molars and alveolus entire and some distance below without any force, the tooth and bone together, the cuspid dropping into the mouth on removal of the other teeth and bones. After removal of the bone I noticed the crowns of the two bicuspids perfectly bare and loose, which the child pushed out of their beds with her tongue, the bone having exfoliated down to a line with the lower surface of the gums. These bicuspid crowns and their pulps were perfectly natural and healthy, which I preserved for microscopical examination. The pulp extended across their base, plump and sound and slightly convex.

The two upper molars on the same side were in a similar condition, which I removed in the same way without the aid of any instrument at all. The bone removed was more extensive than the lower including the crowns of the two bicuspids; the anterior one being visible across the pulps and a portion of the anterior surface of the crown. The second bicuspid being entirely hid by the bone coming away higher up including the floor of the pulp's cavity, a concavo convex matrix, corresponding to form of pulp, the outer portion opposite running up and including portion of as mala.

The pulps of these two bicuspids were destroyed, as they were included in the necrosed portion of bone. It will be recollected that the crowns of the permanent bicuspids are situated immediately under the deciduous molars between the fangs with bone interposing between the deciduous fangs; only in some cases there may be partial contact with fangs, which was the case with one of the above—the second bicuspid with posterior fang of second molar.

On the left side, the disease was limited to the anterior lower molar and cuspid with investing alveolus, which I removed with a small forcep without using any force scarcely at all, the cuspid having previously fallen out; the alveolus formerly occupied by this tooth coming away with the molar. The upper jaw on the left side, was healthy as well as the balance of the mouth.

There was scarcely any hemorrhage at all, the soft parts falling into vacant spaces at once, as though nature had been waiting this event in order to effect a speedy cure. The little patient did not shed a tear, but seemed to feel decidedly relieved and gratified. I did not hear from the case afterward, though I have not the least doubt but that she speedily recovered from all her troubles.

These bones were very offensive indeed, as is the case always in necrosed bone, especially if resulting from the effects of mercury.

All the diseased bone, the sequestrum, came away as they were quite loose in their places and the surrounding parts assumed a healthy appearance.

I believe the surrounding bone to have undergone absorption and healing so far as it possibly could with the loose pieces held in their places mechanically by the soft parts; and I have no doubt but that a new periosteum was already formed under the sequestered bone, ready to unite with the gum and mucous covering as soon as the removal of pieces of bone was accomplished.

This little patient had a fine, naturally robust constitution, not a speck of decay on any one of her teeth, and will no doubt entirely recover from the terrible effects of this uncalled for, and unnecessary mercurialization, with only the deformities which are irremediable; those of the mouth will not be noticeable to any extent.

Here was clearly a case, either of accident or malpractice neither of which is excusable, as it is the duty of practitioners of medicine to narrowly watch the effects of their prescriptions, especially when mercury is used. In this case the doses of mercury were evidently too heroically administered, as children of that age are not subject to bilious engorgements sufficiently to indicate the treatment often resorted to, the disease being that of the lungs and not per se that of the liver. I do not approve of censuring a practitioner of medicine, when he does the very best according to his judgement, though oftentimes they are too careless and negligent when life and death are in their keeping.

The crowns and pulps of the four bicuspids occupy a crypt or cavity in solid bone situated between the fangs of the deciduous molars, or in other words a bony sack which may be separated from the balance of the bone without much trouble, though connected with it by usual bony union, only this portion is lined by the outer original sack containing the crown and pulp. This space formerly occupied by the sack, is left around the crowns in this case, this membrane having sloughed away, even from the two lower in the right side already described, which were in contact with the lower portion of the crypt by vital union which was easily separated, leaving the pulps plump and healthy in appearance. The condition between the pulps and the existing sack which lines the bony cavity already alluded to, is fleshy receiving the fasciculi of nerves and the blood vessels which supply the tooth, with probably some other union with the membraneous sack. There are a number of small holes in the bony crypt for arteries and veins to pass in for nutrition. This crypt is nearly double the size in depth of the crown, the pulp's investing membrane filling the additional space not taken up by the crown.

There is apparently no connection between the interior circulation and neural arrangement, between the deciduous and permanent teeth, each apparently existing independently of each other. On looking into the pulp's fossa of the bicuspid in situ, two deep indentations are conspicuous, corresponding to the two pulps. This pulp fossa is shallow not claiming the distinction of a cavity as yet. These crowns are completed to the first portion of the future neck, where the enamel bevels off to a thin edge, within dentine and without enamel; the thin edge of enamel forming a regular bevel in the two coming away with the bone apparently from incompleteness, the others not so much so.

It must be borne in mind that the dentine and cement constituting the neck and fang, have to be yet developed, the bone, even when not of sufficient depth to admit of alveolus, still absorbs and makes way for the tooth which begins to come up at the time that the fang begins to develop down into the depths of the bone. The tooth as it comes up brings up with it in its development the alveolus or a portion of it, which is a double developemental process.

I made a section through the centre of one containing the pulp which I had treated with alcohol to harden it.

The dentine is apparently better developed or better perfected than enamel, and much harder, which is not the case after eruption. The enamel rods, as they have been termed, are all fully developed and perfect in organic structure with scarcely any earthy salts, except the portion in contact with dentine. The rods in this region contained lime deposits, though not apparently fully organized, seeming more porous, and not that peculiar crystalloid structure witnessed in fully developed teeth.

The enamel structure may be filled with soft lime deposit undergoing condensation to a certain extent; the lime gradually displacing the colloid; matter somewhat similar to the process of petrifaction of organic structures, the chief difference being that of chemico-vital on the one hand, and chemical or mineral on the the other; the one taking place in living structures, the other in structures once living.

These comparisons are not altogether fanciful or imagaginary speculations. Nobody at the present time knows exactly how this process of enamel developement takes place, we are still groping in the dark as on many other kindred subjects.

One thing we are certain of in this relation, that is, that the development and perfection of enamel is a very slow process requiring a great number of years for its complete perfection, ranging from the time of the first commencement of the formation of dentine until sometime after the eruption of the tooth.

The pulps of the bicuspids at this period are in the form of double convex lines of high powers, one convex surface looking down from crown, the other looking into the tooth towards grinding surface, the pulp being oval, transversely across the tooth, seeming to unite with the interior of the organ so far as there is any interior· The border of the enamel is not apparently in connexion with pulp, there being a small space all around the pulp where the enamel stand a little away from this organ which is quite visible to the naked eye. The border of enamel, it will be recollected, is the last formed, and consequently this portion is is least dense, causing the limited margin spoken of the effect of shrinkage.

I succeeded in sawing through the tooth, enamel, dentine and pulp, and retained them intact to some extent, sufficient to show the union by fibrillæ, though not all the way, only a part. At one point the fibrillæ openings through, pulp membrane are very distinct. The nerve fibrils are not as distinct as I have seen them in fully developed teeth, nor as distinct as I could wish for definite date at this stage, but showing the characteristic structures of pulp substance so often referred to by myself in former papers.

The proportion of crown to pulp, is about as 2 to 1, or 2 to 3, hence the proportion of pulp to tooth is much greater at this period than at maturity. The tubular structure of the dentine is about the same as in fully developed deciduous teeth so far as the dentine is developed. The dentine is formed from the inter-dental, if the term is allowable, circulation, the enamel and cement from extra-dental circulation, or from vessels not in any way, so far as we know, connected with the interior or inter-dental or *papal* circulation, unless by anastomosis. After the crown of the tooth is formed, this crown then has a stadium prodromerum, or a stage of probation, during which time there is not much change, not until growth is again commenced which is the eruptive growth, after which the stage is completed, and the fully formed tooth is again stationary, comparatively speaking until advancing age, then again another process is set up which continues to the end. This is a down grade movement.

The importance of keeping the mouths of children in a normal healthy condition during the entire time of dentition, or from birth up to puberty and manhood, cannot be too highly appreciated by the profession and the people at large. Too much care and vigilance cannot be exercised in this direction. Any decayed, diseased and aching deciduous teeth causing congestion and inflammation of the bone enclosing the permanent successors, necessarily disturbs more or less the health of the permanent, so much so as to greatly interfere with the ossifying process, in consequence of which the permanent teeth decay early after eruption from this very cause. Any disease seriously affecting the health of the mouth, produces this effect. The exanthemata diseases at certain ages and *syphilis constitutionalis* are all disturbing causes, and affect more or less the health of the new tooth.

In the above case, the cause of the extensive necrosis was the mercurial inflammation first attacking the oral glands, primarily the mucous membrane; secondly and thirdly, the periosteum covering the alveolus and lining the sockets and fangs of the teeth, cutting off osseous nutrition from the bone surface first, causing death there, subsequently passing across and through the bone to meet the same effect passing in from the opposite side. The failure of nutrition of the surface of the bone from inflammation or any other cause, for an indefinite period, necessarily causes death to strike into the bone, or in other words starvation of the bone ending in death and sloughing, and a dead line being established and vital connexion severed by what is understood as bone absorption, right at the dead line by the live bone beneath, the result of chemical vital action, which must of necessity be influenced by the presence of some organic acid, though no such effect is discoverable in the sequestrum, the animal matter of the cancellæ being all gone from putrefactive decomposition. This mercurial inflammation could and should have been overcome by porper treatment, in time to save the life of the bone, as it was not the work of a day or of even three or four, but of six or eight or more, before death began at the surface of the bone. I do not speak definitely as to time only by approximation.

I well remember thirty odd years ago, when I was practicing medicine in a malarious district in Tennessee, that it was a universal custom to salivate in almost all cases of of fever of whatever character; and similar cases to the one mentioned in this paper were not unfrequent in children, some even sweeping away the entire alveolus of the lower jaw, teeth and all. When a tooth pulp is destroyed there is a dead line somewhere, established probably at the junction of the cement and dentine, in some cases still unlike death of a portion of bone anywhere in the system, no sequestrum is formed or any separation of the living from the dead, as in the case of bone, takes place. The only effort made by the vital forces is to throw off the tooth bodily from the jaw-bone, which she is incompetent to do only to a partial extent. From these facts we arrive at the conclusion that teeth are something different from ordinary bones, even the cement. Teeth are highly endowed tissue, while, bone on the contrary is very low in the vital scale. Injured or diseased bones, are either restored or the diseased portion separated, not so with teeth as before stated.

Tomes in his work, chapter fifth, gives the best histological treatise on dentition extant, embodying the labors and observation of Mr. Goodsir and others. He speaks of the fact that the enamel is not completed until after eruption, but does not give the exact condition and hardness of the enamel at any particular period of development only in a general way.

ARTICLE III.

American Dental Association.

By M. S. Dean, Secretary.

The 11th annual meeting of the American Dental Association, will be held at White Sulphur Springs Va., commencing at 10 o'clock in the morning, on Tuesday the 1st day of

August next. The following facts are gathered from a pamphlet by Prof. Moorman, a resident of that place.

"White Sulphur Springs is situated in Greenbrier County, on the western slope of the great Apalachian chain of mountains." Latitude 37½° North, Longitude 3½° west of Washington. "The Thermometer ranges in Summer, between 55° and 65°, and rarely attains a greater height than 80° at any time in the day." The situation of the springs is elevated, and beautifully picturesque, surrounded on all sides by mountains. The Springs are at the present terminus of the Chesapeake and Ohio railroad. The traveler by rail to these, (from any quarter of the country,) must pass through the town of Staunton.

Persons from the East, North or West, make Baltimore or Washington, points in their route to the Springs. At Washington they take the Orange and Alexandria road to Gordonsville ; then the Chesapeake and Ohio, to White Sulphur by Staunton. Those from the South have a continuous line of railroad, either by Richmond Va., or Knoxville Tenn. Persons going by the Knoxville route, will take the Virginia and Tennessee railroad to Lynchburg ; then the Orange and Alexandria to Charlottesville ; then the Chesapeake and Ohio to the Springs. Those taking the Knoxville route, will find a daily line of stages at the "Montgomery White," that run to White Sulphur, a distance of sixty-five miles. Accommodations at White Sulphur, seem to be ample. "The hotel building" covering more than an acre of ground. The dining-room conveniently seating twelve hundred persons."

The committee to secure reduced fare to and from the place of meeting, are actively engaged, and will be heard from soon.

ARTICLE IV.

American Dental Convention.

The undersigned Committee of Arrangements would inform the *dental profession* that they have made arrangements for holding the seventeenth annual meeting of the American Dental Convention at Saratoga Springs, commencing on Wednesday the 9th day of August, at 11 A. M.

Should the attendance be as large as anticipated, a liberal deduction will be made to members of the convention by the proprietors of the two principal hotels, with the assurance that no effort will be spared to make their guests as comfortable as possible.

Arrangements will be made for the display and exhibition of dental materials and appliances of all kinds. Also for clinical operations, during the session.

Dentists and others desirous of exhibiting instruments, materials or improvements in any department of dentistry, are particularly invited to present them as early in the session as possible, and to notify the committee of their intention to do so.

As August is a very busy month with hotel keepers, it will be advisable for those intending to be present to notify the committee of their wishes &c., at 25 West 23rd St., New York.

Efforts are making to secure a reduction of fare by rail and steam boat.

J. G. Ambler, J. S. Lattimer, W. B. Hurd, J. S. Smith,
Committee of Arrangements.

SELECTED ARTICLES.

ARTICLE V.

Burring Machines.

At a meeting of the Odontological Society of Great Britain, Mr. Harrington exhibited a machine to supercede the use of the hand drill. He said the principle of the machine first suggested itself to his mind some eighteen years since; after almost innumerable attempts, he succeeded in making it available for practice. About five years ago he had the pleasure of exhibiting one before the members of the Society, and very naturally as the inventor of the machine, he flattered himself that it would have been adopted by the profession, but in this he was disappointed. The chief objection to its use being that it was too noisy when in operation; he was bound, however, to say that, in his own practice he had never met with any complaint from his own patients on this score. Being anxious that his professional brethren might avail themselves of his invention, he had turned his attention to subduing the noise complained of, in which he had completely succeeded. The rapidity with which it worked would render it of great value to men in large practice; he calculated he could do as much in ten minutes with it, as with the ordinary hand drill he could accomplish in one hour, and at the same time with much less discomfort to the patient. It would be found principally valuable in two classes of cases—one where the lines of decay ran in a cruciform manner along the grinding surface of molar teeth; these cases were often but imperfectly stopped, owing to the difficulty of opening up the decayed line, but which could be effected with the machine under consideration in a few minutes,—the other, where it was found necessary to remove an amalgam stopping. Mr. Harrington illustrated, before the Society, the rapidity with which stopping could be removed. The machine could be kept perfectly under control while in use, by the thumb of the operator, and its speed could be regulated with the greatest nicety, or could be instantly stopped. With one winding it would work for two minutes. The present machine was superior to the former, not only from its noisleseness, but from the superior material of which it was made.

Mr. Fox said, as he had, through the courtesy of Mr Harrington, had the opportunity of thoroughly testing the capabilities of the machine, he felt bound to give the result of his experience with it, which might be briefly summed up in the remark that, having used it for some months, he should be sorry ever to be without it again. Like everything else, it takes a little time to get accustomed to it. When once the first difficulty is overcome, it becomes invaluable in the operating room. The apparent cumbersomeness disappears after a little practice, the very weight of the machine being an aid in the drilling. A hand drill only cuts on the half-turn forwards; during the back turn no advance is made; but with this instrument you cut all the time it revolves. Although the silent form was best, he did not find patients object to the noisy one—they invariably prefer it to the hand drill,, as being far more expeditious, but, in fact he had always found that patients would believe in what you believed in yourself.

The machine is wound up the same as a clock, and should never be allowed to run down without being checked by placing the thumb on the guide wheel.—*Transactions of the Odontological Society of Great Britain.*

ARTICLE VI.

The Use of the Microscope in the Differential Diagnosis of Morbid Growths,

WITH A NEW METHOD FOR DETERMINING THE DIAGNOSIS, PROGNOSIS AND TREATMENT OF TUMORS AND CANCERS.

By S. Fleet Speir, M. D.

Surgeon to the Brooklyn City Hospital; Surgeon to the Brooklyn Eye and Ear Infirmary; Surgeon to the Tumor and Cancer Department of the Brooklyn Dispensary; Fellow of the New York Academy of Medicine; Member of the New York Pathological Society, &c.

READ BEFORE THE NEW YORK ACADEMY OF MEDICINE, APRIL 6TH, 1871.

We find, then, for our present purpose, that morbid growths may be divided into three classes, according as they are more or less susceptible to the influence of treatment, as follows:

1st. Growths which are curable by the application of local and constitutional remedies, without operation.

2d. Growths which are curable by operation, followed by constitutional and local after-treatment.

3d. Growths which are incurable, or which resist all the known means of cure, and are necessarily fatal.

If, now, this division is correct, and we can find means of determining to which class a given growth belongs, the mode of treatment for that particular case may be at once laid down with great accuracy.

It was claimed, in the chapter on diagnosis, that the microscope, applied to the examination of tumors according to the rules there laid down, was capable of itself, without the aid of the history of the symptoms of the case, to decide to which of the three classes there mentioned (viz: 1st. Malignant. 2d. Semi-Malignant. 3d. Benign) a given tumor belonged.

It is now claimed that the microscope is equally capable, according to the same rules, prescribing appropriate rules of treatment according to the quality of a given tumor.

However, in searching for a solution of the question of treatment applicable to a given case, we must lay aside the first classification of morbid growths according to their malignity, and substitute the classification; as here proposed, according to their curability and then we have, instead of the Malignant, Semi-Malignant, and Benign, the following divisions:

1st. Tumors which are curable by treatment, without operation.

2d. Tumors which are curable by operation, and after-treatment.

3d. Tumors which are incurable.

The reason for this change in classification for the purpose of deciding an appropriate treatment will be apparent, when we refer to the chapter of diagnosis, where it will be seen that the classification, according to the malignity of tumors, while it served well its purpose of general diagnosis, could not afford the needed data for a special basis of treatment; for there, it will be seen, that a semi-malignant growth, for example, may have a certain range of malignity, as shown in the four divisions of which it is capable; and vary, from the mildest form approaching the benign, to the more severe forms, and become in the end a purely malignant growth. Therefore, we must have a nicer classification, and one which will bear an examination with special reference to treatment. That furnished by the relative curability of tumors seems to me to answer our purpose best, for the reason that it has a bearing upon the subdivisions of the classification according to malignity; and it is, in fact, necessary in order to make the doctrine of heterology and homology, as here set forth, applicable in determining a special treatment for each case.

Adopting this, then, as our classification for the present, we find that it affords us an easy means of arriving at the treatment most applicable to any of the forms of morbid growths, in the following manner:

We have, first, to make the diagnosis as to the variety of the growth, and class it as the encephaloid, scirrhus, or, other variety, according to its structure, as directed in the chapter on diagnosis. This will have settled the point next in order, viz.: the relation of the cells of the tumor to the other tissues and to its own cells, as regards their homology or heterology. And, now, adopting the conclusions drawn in the first part of the paper, and applying them to the question of the curability of morbid growths, we find that they arrange themselves as follows, according to their cellular relations to the other tissues, and to their own cells:—

A tumor which is found, upon microscopic examination, to be

Heterologous as to the other tissue and homologous as to its own cells	*Is incurable.*

A tumor which is

Homologous as to the other tissues, and homologous as to its own cells; or which is Heterologous as to the other tissues, and heterologous as to it sown cells,	*Is curable by operations, and after-treatment.*

A tumor which is

Homologous as to the other tissues and heterologous as to its own cells,	*is curable by local and constitutional treatment or by operation.*

This table will be found correct as a rule, but it must be remembered that all growths, with one exception (the encephaloid), may have a tendency to progress either in one direction or the other. For example, a semi-malignant growth may have a tendency to become purely malignant; or it may, on the contrary, tend to become benign. And this must always be covered, at the time of the microscopic examination, and is to be recognized by the relation of the cells of the growth to its own cells.

If the specimen under examination contains cells which, in the main, are homologous as their own cells, and yet in some places they may be found to show a slight tendency to become heterologous as to their own cells; it may be taken for granted that the growth is to a certain extent curable, and the degree of curability of a tumor will be in direct proportion to the extent of this tendency of the cells of the growth to become heterologous as to their own cells; and the possibility of inducing them to become such by treatment.

Thus, a tumor may be pronounced curable, although it may belong to the semi-malignant group; and we may pick out, so to speak, from the malignant or semi-malignant class, such as are manifesting a greater or less tendency of this kind, and place them among the curable growths.

It is in this way, also, that we are to decide whether operation or local and constitutional treatment will be appropriate for the case; or whether the patient will live longer by leaving the case to nature, the disease being incurable, and interference dangerous.

Again, a tumor which has presented the characters of curability in the relations of its cell structure for a length of time, may suddenly take on a homologous tendency; and in proportion as it does this, it would be classed as incurable by local or constitutional treatment, and would necessitate immediate operation and local after-treatment.

The table of comparison here presented will perhaps make these points more clear, and show the advantage of thus classifying growths according to their curability, for the purpose of defining the general treatment.

TABLE OF COMPARISON.

Classification according to the degree of malignity for purposes of diagnosis.	
Heterologous as to the other tissues and Homologous as to its own cells or Homologous as to the other tissues, and Homologous as to its own cells.	*Malignant.*
Heterologous as to the other tissues, and Heterologous as to its own cells.	*Semi-Malignant.*
Homologous as to the other tissues, and Heterologous as to its own cells.	*Benign.*

Classifications according to the degree of curability for determining the treatment.	
Heterologous as to the other tissues, and Homologous as to its own cells.	*Incurable.*
Homologous as to the other tissues, and Homologous as to its own cells; or Heterologous as to the other tissues, and Heterologous as to its own cells.	*Curable by operation and constitutional and local after treatment.*
Homologous as to the other tissues, and Heterologous as to its own cells.	*Curable by constitutional operation and local treatment without operation.*

It is to be understood that the specimen is always examined first as to the other tissues, and second as to its own cells; always putting the relation of the cells to the other tissues first. Thus, for example, selecting the malignant form we would call it a heterologous-homologous growth, affording by the use of a single expression, a means of implying the degree of malignity, the curability, and the cellular arrangement of the growth—as homologous-homologous, or heterologous-homologous, etc.

Thus far we have only determined upon the curability of tumors, and the kind of treatment or operation which is indicated by the nature of the profit as determined by the microscope in the examination of the cellular elements. We must now leave the microscope as an aid, and come to the part concerned in the application of the treatment, a knowledge of which can only be derived from clinical experience and observation; and I must confess that many, and perhaps most, of my readers may have had more of both these than myself; and, therefore, I touch upon them with more hesitation. Nevertheless, it is due to the method which has been thus far followed up boldly to continue on, even at the risk of offending some who may have had more experience than myself and think differently. And yet, when we come to the substance of the matter, we find that the question of a specific treatment, or anything like a specific treatment, involves a great deal more of what we do not, know, and what we cannot do, than it does of plain, successful treatment. So much has been recommended, and so many specific methods for the treatment of cancer have been tried in vain, that it would be a useless task for any one to endeavor to determine which is the good and which is the useless among them.

I prefer, therefore, to "stick to my text," and instead of presenting a review of the various substances which have been recommended for the cure of cancer, to offer such a method and such means of treatment as have seemed to be indicated upon a careful histological study of the nature of growth and decay of tumors, as well as the manner in which they sometimes undergo spontaneous resolution and cure;

and to suggest such methods of cure as promise most—from such a study—to be successful.

In studying nature's methods for the removal of morbid growths, we find that she has two:

1st. *That by spontaneous resolution.*

This is accomplished by reversing the order of things which produced the growth in the first instance, namely: the conversion of the abnormal cellular development into a normal cell growth; and also, but more rarely, by fatty degeneration, and absorption of the abnormal cellular parts, and a subsequent production of normal cells, with a heterologous combination.

2d. *That by sloughing.*

This method rarely accomplishes the cure of a tumor, for the reason that nature usually finds herself unable to complete the process; for the slough rarely extends beyond the diseased parts, and there is, therefore, always left a starting point for the reproduction of the growth.

We have here two valuable lessons by which the profession have profited more or less in adopting them as so many means of treatment. The first method is included in our local treatment by the application of resolvents. The second method we imitate in the application of caustics, and in operations for the removal of tumors.

To these there may be added a third method, not used by nature; and we shall have completed the list of our resources for treatment, namely: a constitutional treatment, intended to aid in the cure by placing the patient in the most favorable conditions for recovery, or by adding to the blood elements which are antagonistic to the growth.

We have, therefore, three modes of procedure:

1st. *Operation for Removal.*

2d. *External or Local Treatment.*

3d. *Internal or Constitutional Treatment.*

It must be acknowledged that this is quite a formidable array; and if the same amount of curative force could be brought to bear upon most other diseases which we have to combat, there would be few among them that could resist it.

Even among the growths which we have been studying, we find but one class which is positively and necessarily incurable, viz: the heterologous-homologous form. The others are all more or less susceptible of cure, through the application of one or the other, or a combination of these methods, when they are applied faithfully and persistently: provided, however, the methods of treatment employed are adapted to the case. The method to be used must be selected especially for the case. The rules laid down above are to be used for this purpose.

In a general way, it may be said that the *malignant forms* require previous constitutional treatment, operation, and then a constitutional and after-treatment.

The *semi-malignant* forms require in general the same treatment as the malignant; but in those cases where the tendency is towards the higher grades of this form, operation is unnecessary.

Benign growths may be treated by operation, if desirable; but they are also amenable to a local treatment.

Under the head of operation for removal is included all operations for the removal of the whole or a large part of a growth "*en masse*," whether it be by caustic, injection, the ligature or the knife.

External or local treatment includes all the applications which are used for the resolution of tumors on account of the power they possess of stimulating or retarding cell-growth, or increasing absorption, when applied outwardly.

Internal or constitutional treatment includes those remedies which, by their action upon the blood and stomach, favor the normal or healthy action of the organs of the body, and thereby tend to present what is known as cachexia.

It is no part of the object of this paper to offer a plan of specific treatment. Indeed, it is quite opposed to it. Nevertheless, it will be desirable to give an example of the author's method of carrying out the details of these general principles of treatment.

1st. Rest, in all cases. Free the part in which the growth is situated from all sources of irritation.

2d. For tumors covered by the integument, apply a liniment composed of potass., iod. and belladona; and give appropriate constitutional treatment.

3d. For epithelioma and all open cancers exposing a granulating surface, apply strong caustics and give appropriate constitutional treatment; and operation, should these fail.

Encephaloid must be extirpated at once. This is the only treatment for this form; and if there is any hope, it will be realized only by a persistent use of local and constitutional remedies after the removal.

Scirrhus should be extirpated, and followed by local and constitutional after-treatment.

Benign tumors may be extirpated or treated locally as the case may seem to reqiure.

It is important in some cases to see that the patient is in a proper condition, and to give such a course of constitutional treatment before the operation as the case may demand.

We occasionally find tumors which have a benign appearance and character until they are disturbed by operation, when they recur and take on a malignant course, and become rapidly fatal. These tumors can be recognized by the microscope, and by it they are shown to be of the semi-malignant type. When we have been able to determine that the growth is of such a character, it may better in some cases when it has not yet taken on its malignant course, to treat it locally and constitutionally, and defer operative interference, which seems to be sometimes the starting point of a more rapid growth; but if, on account of its location, or other reason, is is desirable to operate, a previous course of local and constitutional treatment should be used, in order to put the tissues in as favorable condition as possible for recovery.

I has seemed to me that a combination of iodide of potassium with belladonna, as a liniment, has a powerful effect upon the cellular growth of tissues ; and I have been enabled by the persistent use of it, to dissipate growths which at first appeared only capable of removal by operation. I, therefore, mention this as an example of local applications in cases where the tumor is covered by integument.

Caustic applications are often sufficient to cure the smaller growths, and may even be successful in large cancers. It may often be preferred on the ground of dander in the use of the knife, by reason of the number or size of the blood vessels, etc., and also on the ground that it may be made to accomplish the effects of operation and local after treatment at the same time. The most useful caustics are the preparations of zinc, arsenic, acid nitrate of mercury, etc

As to constitutional treatment, each case must furnish its own indications. These indications are various, and may sometimes be fulfilled by one remedy and sometimes by another.

The following are some of the remedies which promise to be useful on account of their influence upon cell growth, and upon the blood. Iodide of potassium, chlorate of potash, cod liver oil, iron, belladonna, arsenic phosphate of ammonia, etc.

The iodide of potassium with phosphate of ammonia, used freely, is certainly of great value in some cases of morbid growths, and especially in conjunction with the liniment above recommended.

Such are the impressions which I have received of the treatment of morbid growths. Such are the remedies upon which we must rely, upon the absence of the specific which has been sought after thus far in vain. Should a specific be found, doubtless its strength will consist in its power to control and direct cell development and growth.

Let us hope that by a diligent search such a remedy will soon be found ; and, meanwhile, let us apply faithfully the means which are even now at our disposal, and which are in many cases all that is needed to effect a cure.—*Medical Gazette.*

ARTICLE VII.

Methods of Consolidatiny Gold Fillings.

By S. G. PERRY, D. D. S., NEW YORK.

Read before the New York Odontological Society, April 18, 1871

In considering the consolidation of gold, I shall be obliged to give some attention to the preparation of cavities and to the kind of gold used. Without discussing the principles involved or considering the methods adopted by others, I can only give the conclusions at which I have arrived through my own experience. Perhaps this can be done in fewest words by a simple description of my own method.

The *best* operations I ever performed were made with adhesive gold, packed with small-pointed, finely-serrated, nearly straight instrument, in cavities easy of access, free from under-cuts, and in teeth around which the rubber dam could be used. Here, then, I have a criterion. If their perfection was due to nearly parallel walls, straight instruments, adhesive gold, and the rubber dam, then all the other opertions, when possible, must be performed in the same manner. This I accept as a general rule, though such a great variety of cavities occur that it will not do to generalize too freely.

What I most desire from gold is *strength* and *adaptability.* Strength I get from adhesive gold, and adaptability by cavities prepared to admit the use of nearly straight pluggers, and—backache! The strain upon the nervous system in packing adhesive gold is enormous, but I know of no "royal road" to permanent success of any kind. The gist of what I can say, then, on this subject of the consolidation of gold is, *small-pointed, nearly straight instruments, and the lead mallet in my own hands.* This for all cavities, large or small, when the rubber dam can be used; and it can nearly always be applied to all except the wisdom teeth,—and sometimes to the second molars before the wisdom teeth are erupted,—and in most cavities anterior to the second molars straight instruments can be used. I use the mallet myself that I may better control the force of the blow and better conduct the operation generally. Particularly do I find this true in contour fillings.

In packing gold by this method, of course I prepare my cavity with it in view.

I first decide from which side or from what direction I will fill, and then cut from that direction, as much as possible, with nearly straight chisels, so that when ready for filling, a straight plugger will reach every part of the cavity.

In approximal cavities of the incisors, for instance, I was taught, when a student, to pay little attention to the shape of the cervical wall, but to depend on the latteral walls and distal extremity for support. I reverse this now entirely. I leave no retaining-point at the distal extremity of the cavity, unless it is unavoidably so shaped by decay, and I can fill it with a straight instrument and mallet. I want the support for my filling in the base of the cavity, and along the lateral walls for a little distance from the base. With this in view, I excavate at the cervical wall until I get a firm foundation, leaving, if possible, no under-cut at the distal extremity. At the base I excavate in conformity with the naturally oval outline of the cavity, or cut the base at right angles with the lateral walls, as may seem best. In either case I drill a small retaining-point in the most acute angle of the base. This I do that I may mallet the first piece of gold firmly in the place where it belongs. Then, having both hands at liberty, I can carefully mallet every mat of gold that goes into the cavity. Proceeding in this way, I feel more sure of the foundation than by holding the first few mats in place and using only hand-pressure. These retaining-points are small, and are intended to give support to the gold only during the process of filling and not to the plug at large after the operation is completed.

A cavity prepared in this manner can, of course be filled with a single straight instrument, and the gold be consolidated entirely from one direction.

In packing the gold, I hold the plugger in the left hand—

which I seldom move from its support on the patient's face or chin,—and alternately introduce the gold, and use the mallet with the right. The gold I anneal, if necessary, and convey to its place in the cavity on the point of a small instrument used as a spear, or by delicately-pointed pliers. The points of our ordinary pliers are too large,—they rapidly absorb the heat from the flame and cause the gold to be unevenly annealed. Retaining this heat, they cause pain in applying the gold.

I pack the gold as full as I desire it to be, while going on with the operation, so that the last mat is put on at the distal extremity of the cavity. The foot-shaped instruments I use only for condensing the surface and margins, either during the process of filling or after the gold is all introduced. The burnisher I seldom use except at the margins—never after the file and stone. If the gold is not condensed by the plugger so as to file down perfectly smooth and free from pits or flaws, the burnisher cannot remedy its effects.

In approximal cavities in the incisors, when strength is not desired, I use gold No. 5, soft—it is called soft, and yet is sufficiently adhesive to pack well,—No. 4, adhesive, and Nos. 20 to 60, rolled. This latter I use a great deal, though not so much as formely, having learned from a pretty thorough trial where I can and where I cannot use it to advantage. The low numbers I fold in ribbon and cut to suit the case.

I fill in this manner all cavities that can be protected by the rubber dam, and that are sufficiently in the anterior part of the mouth to allow the use of straight instruments. Such parts of approximal cavities in the bicuspids and molars as cannot be easily reached by such instruments, I fill with pluggers bent at nearly a right angle, using the mouth-glass and hand-pressure.

The *exceptions* to this method are approximal cavities in the incisors, already so badly decayed as to render it impossible to prepare them without under-cuts that extend under thin walls; approximal cavities of the same kind in the bicuspids, and very often cavities in the grinding surfaces of molars and bicuspid, having small openings, and yet showing considerable decay interiorly. Such cavities I excavate thoroughly, and fill with oxychloride—more recently with Guillois' cement. After it has set, I cut portions of it away shaping the cavity as if decay had never gone beyond its margins, and fill with adhesive gold, packed, as before described, with straight instruments and the mallet.

This, I suppose, will be considered quite "orthodox" by some members of the profession,—especially those who are in the habit of using non-adhesive gold in cavities in the grinding surface. But if oxychloride can be left in a cavity where it has been put as a capping for an exposed pulp, why may it not be left in any part of a cavity where a straight plugger will not reach? That it will prevent decay we all very well know, and when protected from the action of the fluids of the mouth it seems to be the best material with which such cavities may be filled. It also has the advantage of being a non-conductor, so that nearly exposed pulps must be less endangered.

If oxychloride is too white to put under the enamel of incisors, Guillois' cement is darker and less objectionable than the yellow color of gold, and not so liable to discolor.

When the rubber dam cannot be used, and the operation must be performed quickly to avoid the fluids of the mouth, I know of nothing better than a sponge in approximal, and soft gold in grinding surface cavities, introduced and condensed by hand pressure, aided if possible, by the mallet. Operating as I do without an assistant, in such cases I use Salmon's automatic, the points being finely serrated, and patterned after those I use with the lead mallet, though somewhat larger. Such fillings are generally unsatisfactory, though of course better than none at all. I formerly operated almost entirely with the automatic, but found it having too much lateral motion, too liable to check the teeth from the sharpness of its blow, and not so obedient to the brain as one's own hand. In fact, it is too automatic.

Using oxychloride in badly-shaped, inaccessible cavities, it is unnecessary for me to say that I very seldom use cylinders.—*Dental Cosmos.*

ARTICLE VIII.

Oxychloride of Zinc Treatment of Dental Pulps.

By H. A. Smith, D.D.S

Recognizing, as nearly all do, that the dental pulp is the proper organ through which the teeth receive their nourishment, and that therefore there can be no real safety to the tooth without the presence of the pulp in its normal condition, it is our duty as conscientious practitioners of dentistry, to preserve this organ whenever in our power.

That the dental pulp can, under favorable circumstances, be kept so as to perform its proper physiological functions after exposure from caries or other cause, is now generally admitted.

The methods of treatment recommended to accomplish this end, have been as numerous as some of them were novel, from the early impracticable method of bridging or arching over the pulp with gold foil. The innumerable non-conducting materials suggested from time to time, on down to the surgical method of gouging out a portion of the pulp, each in turn have been tried and found lacking. But dental science advances, and it remains to us who live in these latter days, to avail ourselves of the modern discovery of a *panacea* for all the ills of exposed or diseased dental pulps.

Strange as the claims made for some of the older methods may appear to us now, *none* perhaps have had a degree of success claimed in their use at all to be compared to the oxychloride of zinc treatment.

A collection indeed, of the discussions and papers published relating to treating and capping exposed dental pulps during the last ten years, would present a most curious array of confident statements, upon the least positive evidence, as to the statistics or facts relating to the subject that could be found in any department of modern science.

If we may judge from the statements of the few who have made public the results of treatment with the oxychloride, the same idiocyncrasy to claim success without giving the data upon which to base them, is still to be observed. It will require years of carefully recorded experience to establish what is already claimed for this method.

Oxychloride of zinc has most of the requisite qualities, that in our judgement, are desirable in a material used as a capping for exposed pulps. It is sufficiently indestructible when protected from the secretions of the mouth. Its conductivity is low, thus preventing disturbance to the pulp by thermal changes. It is dense and hard enough to resist the necessary pressure to complete the operation of filling. It has the requisite plasticity to be applied directly upon the denuded pulp, forming a close fitting cap without crowding upon it.

One other quality which we have ever regarded as indispensable—it lacks, viz: that the material should have no chemical or irritant effects when in contact with the pulp tissue.

Oxychloride of zinc is an escharotic and an irritant. It has been asserted, that it is this chemical action upon the pulp tissue which renders it specially applicable for this purpose.

To this position we must take exceptions. A pulp in its normal state of health, if an exposed pulp may be so regarded, should be let alone as nearly as possible. The irritant effect of oxychloride of zinc causes a departure from this healthy state, which would render success much less certain than if the capping was entirely passive.

A favorite method of treatment has been to cauterize the point of exposure with creosote before applying the capping, thus preventing the full effects of the escharotic action, and destroying in part this property which it is thought recommends the oxychloride.

If the pulp is diseased from long exposure or the presence of irritating matter in contact with it, and treatment is desirable, then the specific action of either the creosote or chloride of zinc may be indicated, but they should be applied as therapeutic agents. The remedy used is more fully under our control when applied for a definite object, than when combined with an agent with which we hope to effect a double purpose.

The application of an agent that would not prove an irritant to the pulp, when it is in a proper condition to be covered over, to prevent the pain caused by the oxychloride is very desirable, and has been eagerly sought after. The creosote partially effects this, but it is also an irritant, and unless the case indicates it, should not be applied. It alters the structure of the pulp tissue, forming a coagulum or pellicle which must be absorbed, or remain an irritant or foreign body in contact with it, which would greatly endanger the vitality of the pulp.

It would appear then, that those of the profession who recommend the oxychloride of zinc as a capping, for the reason of its escharotic action upon the pulp, depart from their own theory, when they advise that an agent be first applied to counteract the legitimate effects of the chloride.

What we need is a substance, a compound having all the properties we have enumerated, that shall be received in contact with the pulp tissue, without producing irritation. save that which may follow from contact with any foreign body, no matter what its properties are.—*Dental Register.*

ARTICLE IX.

Case of Necrosis of Lower Jaw from Mercurial Salivation.

Under the care of Dr. T. A. McGraw, Professor of Surgery in Detroit Medical College.

Thomas McGlochlin came under my care at St. Mary's Hospital on March 29th, 1870. Six years before he had been treated for syphilis, and badly salivated, had since then been well until the middle of March, when he caught a severe cold, was seized with chills, fever, headache and coryza. He consulted a physician, who ordered some powders, which he believes to have been composed of calomel. The quantity contained in each powder is unknown. After taking three or four his gums began to get very sore, his breath fœtid and his teeth loose. He, notwithstanding, continued their use according to orders, until he became alarmed.

On examination, I found him presenting every symptom of mercurial salivation in a very high degree. The peculiar odor, the ulcerated cheeks and swollen and bleeding gums, the profuse secretion of saliva, and the teeth dropping from their sockets, as well as the very positive history of the case, left no doubts regarding the diagnosis. Already, when he came under my charge, had the lower jaw-bone become seriously diseased. Sinuses discharging pus led to bone, bare of periosteum.

Chlorate of potash, in ten grain doses, was given every hour. His strength, which had begun to fail, was kept up by concentrated nourishment, given frequently in small quantities, and moderate doses of morphine served to relieve pain and produce rest. The local symptoms rapidly subsided. The swelling diminished, pain disappeared, the breath, though still fœtid, lost somewhat of its offensive character.

On April 12th, the necrosed bone seemed ready for extraction. The patient was brought before the class of the Detroit Medical College, and by forceps and fingers, more than half of the lower jaw was removed. The specimen is now in the College Museum, and represents that portion of the jaw included between the right condyle and a point half an inch to the left of the symphysis.

The patient did well, and left the Hospital free from all disease and in tolerable strength. Sufficient time had not elapsed, however, on his departure to determine whether regeneration of the bone would occur, nor have I been able to learn of his condition since, but it is remarkable that scarcely any deformity resulted from the loss of bone. The jaw seemed to retain its contour, and showed no tendency to fall in.—*Detroit Review of Medicine and Pharmacy.*

ARTICLE X.

Tin Foil.

By L. D. WALTER, D.D.S., Rochester, N. Y.

It is very seldom, indeed, that anything is said in the *Dental Journals* concerning the history and properties of this (to the dentists) almost indispensible article. Its history, as a metal, is given in detail in all works of metallurgy, and, as a filling, in the two or three works now extant on operative dentistry. Its properties are mentioned and dilated upon more or less completely in the above works, but the one to which this article would call attention—the property of cohesiveness—is set aside and numbered with those deserving of little, if any, consideration. That tin foil is cohesive to quite a marked degree is not generally known; a fact attributable partly to faulty manipulations, and partly to the scarcity of a pure article properly made This cohesive property is seldom recognized (for the reason above stated), though it is often ignorantly made use of by old and young operators.

In tin foil, as well as in gold, it is found best developed in the pure article. It is not found necessarily in pure tin any more than it is necessarily found in gold foil; for it is well known that gold foil may be pure and yet not cohesive; and, if the property of cohesiveness does not depend upon the purity entirely, of the material, it must depend, more or less, upon the treatment to which the material is subjected during its manufacture.

Heretofore gold foil has absorbed almost the entire attention of foil manufacturers, while tin foil has been made and thrown into the market merely, it would seem, to make truthful the statement common to all circulars, that "So and So manufactures dentists' foil of all kinds." In manufacturing a superior article of tin foil, manufacturers would be advancing greatly their own interests, and also the interests ef their patrons, for the latter would willingly give much more for a good article than they are now paying for an impure, improperly prepared and almost worthless stuff, commonly sold at the dental depots. But, to return: a good article at hand, it should not be handled more than is absolutely needful, in fact, should be treated as carefully as gold foil. The common method of rolling into a rope and cutting off in short pieces, is convenient, but has a tendency to destroy the integrity of the foil and render it less cohesive. I prefer to fold the coil carefully in strips of from two to three or more layers in thickness, and pack as with gold foil, folded in the same manner. It is often convenient to cut these strips into little blocks. An annealing pan, kept at a comparatively low temperature, is a valuable accessory while packing the tin. A water bath (the temperature of which cannot possibly exceed 212° F.) is, perhaps, preferable to the pan. The most desirable instruments are those having broad working ends, with well defined and sharp serrations—Butler's condensers, for example.—*Canada Journal of Dental Science.*

MONTHLY SUMMARY.

Importance of Right Side of Brain.—Dr. Brown-Sequard (*London Lancet,*) at the recent meeting of the British Association for the Advancement of Science, reported the result of some interesting experiments on the brains of different animals, tending to show that the right side of the brain was more important for organic life than the left side, and that, although the two sides of the brain were precisely alike when the animals were born, by greater development of the activity of one side it afterwards became quite different from the other. He showed also that epilepsy induced in the guinea-pig could be transmitted to its offspring.—*Med. Times.*

Remedy for Ring-Worm.—The *L' Union Medicale* contains the following formula for *ring-worm.* ℞—Washed Sulphur, grs. 22: Carb. Potash, grs. 8; Lard ℥ i.—Mix. Continue the application some time after the apparent cure, in order to prevent a return.

Life-Like in death.—Rossbach, in a late number of Virchow's *Archiv* (Band 51), has given an interesting account of numerous cases of sudden death on the fields of Beaumont and Sedan, in which the bodies of those killed retained the position and the expression of face present just before death. In one case, a group of six French soldiers were killed by the explosion of a single shell as they were breakfasting in a slight hollow. The shell had struck one of them sitting in the middle full in the back, where it was partly lodged; the fragments had torn away his thighs and buttocks, and killed his comrades. From one of them the skull was carried off, while the face still retained the expression of laughter at the joke of a companion. The next one to him still held delicately raised to his lips, between the forefinger and thumb, a tin cup from which he was about to drink when the explosion had taken off the whole of the upper part of the face and head. The close manner in which they were seated together had prevented the bodies from falling after the lapse of twenty-four hours. In another case a soldier shot through the breast lay half reclining on one side, with the photograph of his wife or lover held up straight before him. Rossbach cannot admit that in such cases the nervous centres must necessarily be injured, nor that death must have been instantaneous. Rigor mortis must have set in between the last moment of life and the first of death.—*Lancet.*

Effects of Alcohol and Tobacco on the Sight.—On the subject of color-blindness and amblyopia, Dr. Richard H. Derby (*N. Y. Med. Journal*) says: "Almost always both eyes are affected. This form of amblyopia occurs almost solely in men; out of fifty six cases only three were women. It is a disease of adults; its frequency increasing from the twentieth to the fortieth year. In a portion of the cases abuse of alcohol was certainly the cause of the affection, and in others excessive use of tobacco undoubtedly contributed to produce the disease. Forster, in a paper on the injurious action of tobacco on the vision, attaches still greater importance to this agent as a cause of amblyopia, supporting the views of Mackenzie, Sichel, Hutchison, Lureiro, and others. The author cites twenty cases, in which there was a central scotoma, with a horizontal diameter of 18° to 25°, within which large letters could still be recognized. All these patients suffered from some affection of the digestive and nervous system. Loss of appetite, constipation, loss of sleep, were common symptoms. Each one of the twenty patients was a strong smoker, and in eleven of these cases a very marked improvement was observed when the use of tobacco was given up.

The Tolerance of Chloroform.—Dr. Edward R. Squibb, of Brooklyn, N. Y. (*New York Med. Journal*), remarks that the greatest consumption of chloroform he ever met with was in a patient of Dr. Gustave Morelli, of New York City. This patient was the widow of an Italian physician ; her age 48, and her appearance healthy. She was subject to hereditary migratory gout, the sudden pain of which was so severe that she finally gave up all slower means of temporary alleviation for the prompt action of chloroform. Between the 31st of March and the 16th of December, 1865, a record was kept, and during this time, by Dr. Morelli's direction, she was supplied by Dr. Squibb with fifty-three pounds of purified chloroform. During acute attacks she not unfrequently used two pounds each day.

Nostalgia a Cause of Insanity.—Dr. Ralph L. Parsons, N. Y. City Lunatic Asylum (*Am. Jour. Insanity*), holds that nostalgia is an important cause of insanity in our foreign population, and in his opinion tends to render the prognosis of those insane from this cause unfavorable. Again, the majority of our Irish patients are of a low order of intelligence, and very many of them have imperfectly developed brains. When such persons become insane, he is inclined to think that the prognosis is peculiarly unfavorable. It is not improbable that an undue proportion of this class of the Irish emigrate to this country.—*Med. Record.*

The Local and Superficial Anæsthetic Effects of the Phenols—According to Dr. Edward R. Squibb, of Brooklyn, N. Y. (*New York Med. Journal*), the best of these is cresol or cresylic acid, and next phenol or the crystallized carbolic acid. But practically the cheap mixture of the two, called coal-tar creosote or impure carbolic acid, is as good as either. The prompt and complete effect of very diluted aqueous solutions of this creosote upon the pain of burns, erysipelas, &c., led him to infer peculiar anæsthetic properties many years ago, and the numbness or insensibility produced upon the hands by handling it confirmed the idea.

Castor Oil.—A correspondent suggests that this article of the Pharmacopœia may easily be made palatable by the employment of glycerine as an incipient; in fact the dose will be found as "sweet as honey" and devoid of any unpleasant taste:—

℞. Glycerine (puriss),
Ol. ricini, aa ℥ij.;
Ol cinnamoni, m iv. M.

The ol. cinnam. should be rubbed up with the glycerine, and the ol. ricini then added, and the whole well mixed, by being shaken, when used. In larger doses, lessen the proportion of the glycerine.

Abuse of Alcohol among Women.—The *Practitioner*, for February, in an article on the use and abuse of alcohol by women, reckons up the amount of spirits habitually consumed by English girls of the middle and upper classes, and finds that in the forms of beer, sherry, champagne, &c., the daily average is from two to three ounces of absolute alcohol. The disastrous consequences of this excess are dwelt upon at length, and the writer concludes by a suggestion that all alcoholic beverages be avoided at evening parties, where, it appears, ladies are at present in the habit of drinking more champagne than the gentlemen.

Fracture of a Rib from Coughing.—Mr. Miall reports, in the *British Medical Journal*, the case of a woman who, in the seventh month of pregnancy, during a violent fit of coughing, fractured the tenth rib transversely, a little anterior to the tubercle.—*Boston Medical and Surgical Journal.*

Local Application of Carbolic Acid in Diphtheria.—Dr. C. G. Rothe (*Berliner Klin. Woch.*) applies carbolic acid to the seat of disease by means of a hair-pencil. The patient is to use at the same time, as a gargle, ten or fifteen drops of this agent to a tumbler of water.—*Med. Record.*

Medical Graduates in the United States.—The number of medical graduates in the medical colleges of this country for 1871 amounts to about one thousand and fifty, of which New York City gives between three and four hundred.—*Med. Record.*

A Cure for Hemorrhoids.—Calomel applied dry once or twice a day to tumid and tender hemorrhoids rarely fails to cure them in a few days.—*Boston Medical and Surgical Journal.*—

EDITORIAL DEPARTMENT.

Dental Items.—In a recent clinical lecture on "Malignant Diseases of the Jaws," delivered at the University of Pennsylvania, and reported for the *Medical and Surgical Reporter*, Dr. J. E. Garretson spoke as follows:

Malignant growths will frequently present themselves to your notice in this as in other parts of the body, and it will sometimes be a difficult question for you to decide whether life will be prolonged or comfort enhanced by an operation. Study your cases, gentlemen ; obtain all the knowledge from books, teachers, clinics, and all other sources, but learn to be independent thinkers —learn to use the faculties with which God has endowed you, then you will become truly useful, and will yourself recognize it. Because one scirrhous breast is removed—because one cancerous jaw is resected, do not conclude that all are to be similarly treated. While you are physicians be also philosophers.

In cases of epithelioma there can seldom be a doubt as to the course to be pursued when the disease is seen in its early stages; and here let me advise you never to allow your patients to delay such a procedure for a month, or even a week, if circumstances are favorable, for it is not within our knowledge to say the moment at which constitutional contamination is to occur. Numerous cases have come under my observation where persons have lost their lives simply by neglect of this injunction.

In all resections of the jaw be thorough in the removal of all parts, even well outside the disease; yet at the same time pay attention to the after comfort and appearance of your patient. For instance: a young lady came to my office, some years since, with an epulo-fibrous tumor, occupying the lower jaw, which I immediately saw was of the recurrent type. Wishing, however, to spare all needless deformity, I advised her to have simply the alveolar border resected, with the distinct understanding however, that there might be a return of the difficulty. In the event of such return I showed her that a second operation could be performed which would still preserve the contour of her features, by leaving simply the rim of bone along the base of the jaw, and should further trouble arise, a complete section could then be made. Several surgeons had advised complete removal at once, but I felt justified in the course advised, by the fact that life was not in imminent danger, and the major operation was at any moment available.

I performed the first section and it was not a success, the disease soon reappearing, and again I was most strongly urged to make a complete resection; yet I remained firm to my first convictions of right, and performed the second, leaving a complete rim of bone along the base, and this time I was gratified to find that I had not only removed the disease (there having since been no tendency to return), but had also saved her attractive face. Spare the features then, when possible, but do not do so when it interferes in any way with safety.

Simple and compound cysts, osseous tumors and exostoses may all become causes which will compel you to remove portions of this bone.

These osteomata are not common; but when situated upon so prominent a portion of the body will demand relief. Upon the teeth themselves we sometimes find true ivory exostoses. But these are quite rare, and will but seldom demand removal of more than a small portion of the adjoining alveolar process. These ivory exostoses, consisting of compact bony tissue, with Haversian canals and true lamellar systems, may however, develop in the bone itself.

Giant-celled sarcomata are also found in the lower jaw, but their removal is of doubtful propriety.

Cartilaginous tumors, when invading the jaw, usually affect the bone in its entire extent, and are rapid in their growth, tending to quick destruction of all the surounding parts, although Lebert mentions a case (*Abhandlungen*, p. 197) where Diefenbach removed such a tumor by three operations and the patient recovered.

I have now to show you a patient who presents herself with a small tumor upon the right alveolar process of the lower jaw, at the canine tooth, which is variable in its size, being sometimes large and dense, while again it is soft and flaccid. This I can only attribute to its being an erectile growth, analogous to the nævi, and such it truly is—an epulo-erectile tumor. I believe it to be associated with the periosteum, and my probe reveals the fact that the underlying bone is also diseased. I shall, therefore, resect this and the adjoining alveolar process, using the cutting forceps to accomplish it, after first dissecting off the tissues of the gum.

Here is a woman who was before you last winter, suffering from necrosis of the jaw, consequent upon neglected alveolar abscess. As I then told you, we had little to do but to support the system and endeavor to assist nature in the separation of the bone slough. This, you will remember, we proposed to do by the injection of stimulating materials, such as equal parts of tinct. iodine and tinct. capsic. comp., and afterward by an injection of acid. sulph., one part to seven of water, as recommended by Pollock and others. In regard to this sulphuric acid treatment, although you have seen me use it before the class, yet I am undecided as to its utility. I do not condemn it, neither can I heartily give it my support, since any remedy in such a slow operation as is the separation or decomposition of a sequestrum, should be tried before its true merits or demerits may be recognized. Nature does so much herself that we must be guarded in our statements as to the assistance which we render. Because one case recovers or does well under a certain form of treatment proves nothing—it is only as the testimony of one witness needeth further corroboration.

To the above measures we have added tonics, good food and stimulants, as well as the attempt to save such portions of the bone as might be partially dead, by stripping off the periosteum in advance of the disease by means of little tents of cotton or sponge, thus saving the osteo-genic powers, but all these have been unsuccessful.

You have become familiar with all the different steps of the treatment, as she has been repeatedly before you, and you will remember that she has never presented that robust, healthy appearance which would have been favorable to an arrest of this death of the bone. Some two months ago you will remember that I found a large sequestrum lying in the tissues, which was removed by an internal incision, and proved to be the entire ramus, save the condyloid processes. That this was not all the necrosed bone is proven by the characteristic pouting teat-like prominences which you see at the orifices of these pus discharging sinuses, and this same fact is also made evident by the probe. The entire remaining portion of that side (the right) is dead, and is now only a foreign body, increasing drain and enfeebling the patient.

In regard to resection of this bone for necrosis you have heard me express my views, especially in regard to phosphor-necrosis, since the bone is often in that porous, spongy condition that the remaining portion easily absorbs deleterious materials, and pyemia is the fatal termination of many cases. In the present case, however, the ramus is already taken away, and the only remaining portion is that from the angle to the symphysis, so that the above danger is therefore lessened.

I have been hoping to save some portion of this jaw, but now find it impossible, and propose to-day to remove all the portion alluded to. This will make a resection of considerable magnitude, and will necessitate, because of peculiarities in this case, an external incision from the centre of the lower lip to the point of the chin, and thence along beneath the bone of the jaw as far as the angle; I am afraid to risk the cul de sac which would result from an internal operation. In regard to external incisions upon the face, I would advise you, gentlemen, to spare the resulting prominent marks which must necessarily be permanent, provided you can do it without interference with the success of the operation and safety of your patient. The use of a mouth stretcher will render it possible to perform many resections without any division of the skin, but when the section is large I would not oppose you in exposing the parts, particularly in cases like this one, when pus-poisoning is the great danger to be apprehended. If you are careful in the approximation and adjustment of your wound, a union may be secured so rapid and perfect that the resulting scar will be insignificant. Safety and freedom, must be your first guide ; appearance the second.

[The operation was then commenced by making the incision as above described, and turning back the flap so that a free exposure was obtained. The soft parts were now freely dissected and a saw carried through the symphysis, when a strong pair of forceps lifted it easily from its bed without further labor, since the angle and ramus were already absent from the previous operation. The facial artery was not divided, and the only vessel requiring ligatures was the inferior labial. The parts were approximated most accurately, and the alum water dressings applied. There were no unfavorable symptoms, and the part healed most kindly, both externally and internally, so that in two weeks all seemed well, and there was no discharge in either direction.—DE F. W.]

At a recent meeting of the Pennsylvania Association of Dental Surgeons, Prof. Wildman spoke as follows on the fusible alloys:

I consider that Weston's metal is not pure tin, as it makes a sharper impression than can be made with pure tin. I have seen cases when, after being exposed to the air for a long time, Weston's metal becomes tarnished far more than pure tin would be, I suppose it contains antimony. Tin is an old substitute for gold or rubber as Dr. Haden used it in 1820. He said :—I show you a case with a silver base, with the blocks attached by casting tin around them. This case has been worn over six years. Tin when placed in direct contact with gold and silver, becomes changed in character and if rendered brittle after having been worn in the mouth. This, he attributed to galvanic action. He had made many temporary sets on silver base, with blocks fast tened by tin, but had never secured blocks to a gold plate but once. Another case was worn fourteen years, and did good service until the latter part of the time. He could not recommend it for so-called permanent sets. He considered this an exceptional case. In making this kind of work, or that of the fusible alloys, the plaster composing the mould should contain a large proportion of silex, feldspar or asbestos, to render it more porous and prevent the mould from cracking by the heat to which it would be subjected. Vent holes should be made leading from the most elevated part of the mould to allow a free egress of air. The mould, at the time of pouring, should also be heated nearly or to the fusing point of the metal cast into it, to prevent its being chilled too soon. I have never made a case of the fusible alloys, as I have no confidence in them. I have more confidence in block tin. I think none of the fusible metals will resist the action of the acids of the mouth as well as pure blook tin. Dr. Blandy's metal is made of tin, 10 parts; bismuth, 1 part; antimony, 1 part; silver, one part.

A method of taking "impressions," described by Dr. B. F. Rosson, at a recent meeting of the Mad River Dental Society, is reported in the *Dental Register*, as follows:

The principle consists in obtaining an impression only of the parts upon which the plate is to rest; this is done by using for the lower jaw, a very narrow impression cup, and almost flat instead of deeply concave, as they usually are. This may be bent so as to partake as nearly as possible the form of the ridge of the jaw. A sheet of softened wax is then put upon the cup or holder, and then pressed upon the jaw until a good impression is secured; then trim down the wax just to the size the plate is to be, now use this for the plaster impression cup; a very small portion of plaster properly prepared will be sufficient to obtain a very perfect impression. The plaster should at no point be permitted to pass much beyond the proposed border of the plate, this to prevent pressing and distending the soft tissues on both sides of the ridges, such distension usually draws the mucous membrane of the gum out of position. Immediately after the cup with the plaster is placed on the jaw, the tongue should be raised above the cup and kept there till the plaster has set.

The cup for the upper jaw should not extend much beyond the ridge all round, so that the same principle is observed as described for the lower.

OBITUARY NOTICES.

H. C. **Peebles**, D.D.S., was born in Virginia in 1812, and died in St. Louis Missouri, in February 1871. Dr. Peebles commenced the study of dentistry in Ohio, from whence he removed to Missouri, and practiced for a number of years in the town of Lexington, where he enjoyed a high reputation. Removing to St. Louis, he occupied a prominent position among the dental practitioners of that city until his heath.

In 1850, he received the degree of Doctor of Dental Surgery, from the Baltimore College of Dental Surgery. In an obituary notice, Dr. Judd speaks as follows of his former colleague, which all who were acquainted with the late Dr Peebles will endorse.

"Dr Peebles was a man of great energy of character, and having early imbibed correct views in regard to dental education, he entered into the discussion of the educational questions of the day with spirit, and ceased only with his life to exert all his influence for bringing about a higher grade of literary and scientific attainments for the members of the dental profession.

When the Missouri Dental College was organized, he entered upon the duties of a teacher in that Institution, which he filled with credit to himself and to the college, until his failing health admonished of the necessity of resigning a position, the onerous duties of which he was no longer able to perform. The organization of the Missouri State Dental Association was due to his almost unaided efforts, and for many years he was an active member of the St. Louis Dental Society, and of the Western Dental Association, and also of the National Dental Association.

No member of the profession could have been taken from its ranks in Missouri, whose loss would have been more severely felt. He leaves a family and many friends to deplore his loss; and an example whose benign influence shall be felt through many a coming year." "Blessed are the dead who die in the Lord for their works do follow them."

P. **Preterre**, D D.S., a graduate of the Pennsylvania College of Dental Surgery, died in the city of New York on October 30th, 1870, aged 58 years. Dr. Preterre was the oldest of five brothers, all practicing dentists.

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ARTICLE I.

Charlatans and Empirics, or Dentistry as a Learned Profession.

By A. P. Stevens, D. D. S.

Read before the Merrimac Valley Dental Association.

* * * * * I now invite your attention to my subject for the evening, which is entitled "*Charlatans and Empirics, or Dentistry as a Learned Profession.*"

Such of you as have been subscribers to any considerable extent—and I trust all of you have—of periodical dental literature, cannot have failed to remark the frequency of articles reviewing the early struggles and rapid upward progress of the profession of dentistry. Indeed, so closely have such articles been interwoven within the pages of our representative journals,—the Cosmos, Times, Journal and Register,—for the past decade of years, that I have often thought the little army of writers so employed must be strangely enough possessed of the idea of the danger we are in, and so are engaged in the laudable occupation of "whistling aloud to bear their courage up;" or, in lieu of this, are members of a great admiration society, whose business it is to tickle their own and each other's ears every convenient occasion.

I would not be understood by these expressions to wholly or mainly deprecate this spirit of pride and self-laudation; on the contrary, possessed as I am of deep and absorbing love for my profession, I find much to respond to, and much to commend in such articles. Oftentimes when harrassed and wearied through vain efforts and humiliating failures, I have had recourse to such reading, and risen to better efforts, refreshed in mind and body, in view of successes achieved by others more laborious, or more fortunate than myself. Truly we have reason for pride, but still none the less for distrust and watchfulness. Remember, it is truism not only in political warfare, where it is best illustrated, but in the conduct of every enterprise, that excess of confidence detracts from effort, and undermines one's best chances of success. Realizing this to its fullest extent as it applies to our profession, I voluntarily take upon myself the unpopular duty of calling your attention to a few ugly truths and facts; or, in other words, instead of joining in the glad acclaim of praise, to sound the notes of alarm in our camp.

I am to speak to you of Charlatans and Empirics. Let me first give character to the words I have chosen; then make it plain to you that we have such characters in our midst; next convince you that such persons are out of character in our profession; and last, that we, as a profession, are characterless, if we do not frown them from our ranks. To all intents and purposes, the terms Charlatan, Quack and Empiric are synonymous. I give you Webster's definition of each:—

Charlatan—One who prates much in his own favor, and makes unwarrantable pretensions to skill; a quack; an empiric.

Quack—A boaster; one who pretends to skill or knowledge which he does not possess; an ignorant practitioner.

Empiric—An experimenter; a physician who entered on practice without a regular professional education; hence the word is used also for a quack, a charlatan.

These are Webster's words, gentlemen, and Worcester gives us others like them. I confess that as I review my own twelve years of professional struggle, and attempt to weigh in the same balance a majority of my fellow practitioners, they sound hard and harsh; that the line is drawn painfully, remorsely close, but still we must accept them. We cannot do otherwise if we would. What think you, does the word portraiture of the great lexicographer apply to any among the twelve thousand dentists in our country? To any among our own number? Let us look the question fairly in the face, with no spirit of recrimination or envy, but as honest men, who, knowing there is a spirit of Judas in our midst, are more filled with fear lest it should be found with ourselves, than desirous of charging it upon our neighbors. Do any of us prate much in our own favor? Do any of us make unwarrantable pretensions of skill? Do any of us boast, yet know how frail is the foundation beneath our feet? Do any of us arrogate to ourselves the possession of knowledge, concerning which we would not dare be questioned? If so, and I say it in no spirit of self-security and egotism, no matter in what proportion such persons stand in point of number to the great army of dentists in America, then are such quacks, charlatans, empirics, and are guilty before their profession, and the public whom they victimize, just in proportion as they are possessed of innate talent and ability, which, if developed, would raise them above the level of this stigma. Do you accuse me of harsh words now, of unkind denunciation? But remember, I am not claiming invulnerability; I am not saying, "stand by I am holier than thou." Gentlemen, I fear there are a great many charlatans and empirics in our profession. More than that I cannot resist the conviction that some of us who have felt most secure, are not without the stain of this foul blemish upon our professional garments. What is the remedy? It is a simple one, and though not without its weariness and toil, yet none the less plain, and none the less royal,—more of brain culture with that of manual dexterity; more of underlying principles before attempts at practice; more of close and searching study and less of cunning craft; more of the conviction that the dignity and honor of our profession is committed to us, rather than dependent upon the memory of the departed. Let us look backward for a moment and consider whence we are; perhaps by this means we can best determine what we are, and what we shall be.

Mr. Phillips, in his lecture upon the "Lost Arts," indirectly asserts that dental surgery flourished as a distinct branch of science in the days of the old Egyptian Empire, more than three thousand years ago.* For one, I should be glad if this belief might be fully substantiated; for I have a profound veneration for antiquity, with its hidden, mystical lore, but a still more profound regard for anything that honors my profession. Be this as it may, we have no fear of our art being esteemed wanting in years, or lacking in great names that have been identified with it. The lustre that emanates from the name of Hypocrates; of the historians, Herodotus and Pliny; the poet Horace; of Celsus and Galen; and still later, of Eustachius, Hunter, Fox, Bell, Kercker, and a score of others, falls as legitimately and gracefully upon us, as it does upon the disciples of medicine and general surgery. Add to these a Harris, a Hayden, a Townsend and a Flagg, with scores of other names of our own day, whose genius and talent have lighted up the dark way these one, two, three and four decades, and we have a wealth of research and fame that may well satisfy the most grasping miser of us all. But this is not the whole of dentistry in the past. If it has had its good men, and its great, is has also had its full share of fools and knaves. Superstition and ignorance have walked unchallenged through its ranks these many scores of years, and gathered to themselves their followers by tens of thousands. What otherwise could we expect? A crude science without boundaries or definitions, a crude unlearned fellowship, was a natural sequence. But despite the general darkness and gloom of our past, there were bold hearts and brave spirits in those days—men who could not be satisfied with the little store of knowledge bequeathed them, but who with ever longing desires stretched out their hands into the unknown future, eagerly searching after truth.

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*In support of this assumption, we have the words of Herodotus the Greek historian, who said:—"The art of medicine is so practised in Egypt, that there is found an individual healer for each distemper. Hence the whole country is filled with healers; some take charge of the disorders of the eyes; others of those of the head; others of those of the teeth; others of those of the belly, etc."

Science ever opens its store houses to him whose ceaseless importunities will not be denied. Thus little by little mystery after mystery was unfolded; truth after truth defined; principle after principle established, and a world of knowledge opened before them. But not for themselves alone were these investigations pursued; not for their gain alone, but as legacies to all coming time—for you and me. Even as the hardy pioneers of the trackless Western world pushed on their tireless march, overcoming obstacles and dispelling doubts, that advancing civilization might have unobstructed paths, so these men whom I have named, and many others equally honorable, toiled and labored in the unexplored domain of science, that the men of the present time might have a sure foundation upon which to rear a lofty superstructure—*a system of thorough dental education.* Let us glance at the means thus placed at our disposal, and see if they are adequte to the end.

Fauchard, who by many writers is termed the "father of dentistry," published in 1720 the first comprehensive treatise upon the theory and practice of our profession. The work saw two editions, and for many years stood at the very head and front of dental literature. The next work of note was by Jourdain, in 1761. After this came the immortal John Hunter's "Natural History and Diseases of the Human Teeth." These, with a publication by Robert Blake, filled up the interim to the year 1803, when Fox gave the world the result of his researches in his two famous works, which, as revised under the title of "Fox and Harris on the Human Teeth," by reason of its honorable age and sterling merit, should have a place in ever dentist's library. Leaving the works of the fathers, we turn to those of their sons, in the persons of our countrymen.

In 1822, Eleazer Parmly published the first work upon the subject of dental practice ever issued from the American press. It was a small monograph entitled "Diseases and Treatment of the Teeth." About the same time, Dr. J. F. Flagg published a similar treatise. This was followed during the next few years by various papers on dental subjects, all of which were presented to the profession through the medium of the medical journals published in New York and Philadelphia. But it was as late as 1829 before the first volume worthy of being ranked as a text book for students, was published by an American author. This was an illustrated work of 500 pages, by Samuel S. Fitch. Those who have had access to the volume—I have vainly tried to obtain it—speak of it as being very thorough and comprehensive for that period of our profession.

In 1839, Chapin A. Harris—a name at whose mention we should all bow—gave us the first edition of his "Principles and Practice," then published under another title. I presume this work, in the shape of one of its advanced editions, is possessed by all of you; if not, it should be, for every dentist in America, at least, owes him a debt of gratitude, the payment of which can only be approximated by the purchase and careful study of his two great works—the volume I have referred to, and his "Dictionary of Dental Surgery." Since the year 1840, which, from the fact of its being marked by the establishment of the first Dental College, and the first Dental Journal in the world, is looked upon as an epoch in the history of dental literature, there have arisen many able writers who have given us volume after volume, some of which bring to view the very foundation of our art, and present its many intricate paths with a masterly hand. Prominent among these are "Piggot's Dental Chemistry;" Bond's Dental Medicine;" "Taft's Operative Dentistry;" "Jacobi on Dentition;" Robertson on Extracting Teeth;"—

a valuable book by the way for students; and last, though by no means least, "Diseases and Surgery of the Mouth, Jaws and Associate parts," by James E. Garretson. May God bless him and his labors.

In 1840, the "Baltimore College of Dental Surgery" was founded—the first in America, the first in the world. In 1846, the "Ohio College" was established in Cincinnati. In 1856, the "Pennsylvania College" sprang into existence, followed in 1863 by its sister institution in the same city—the "Philadelphia Dental College." Since which time there have rapidly risen the Missouri College, in St. Louis, the New Orleans, the Harvard, and the Boston Colleges. Nine well established Dental Colleges in our land, each with its corps of earnest, indefatigable men,—men who in the main would take rank in any calling, and who esteem no time wasted, no exertion without its rich reward, that adds to the attainments and dignity of any member of our profession.

What say you gentlemen, have we been lacking in available means wherewith to make ourselves artistic men? Scientific men? educated men? Could any one with a desire for knowledgs have failed of decent attainments within the last score of years, without shutting his eyes to this long list of advantages offered him? I think not. Perhaps it will be as well here to glance at some of the essential qualifications this half century of constant progression imperatively demands of him who would fulfill his obligations as a dental practitioner.

I need hardly remind you that the dentist of to-day cannot, with honor, occupy the same place as did he of 1820 and 1840. Then, even though honesty and earnestness had been the characteristics of every disciple of our art, the lights that shone in upon his upward pathway were flickering, in comparison to the noonday clearness that now illumines every step. Then knowledge was wrung out by patient toil; by laborious investigations; by pains-taking records and repeated experiments. Now, the field is clear, and the accumulation of a thousand minds, in a half century of years is given us for the occupation. No faculty of Dental College;

no well established curriculum of studies; no library of voluminous literature waited upon the Haydens, the Parmlys, and the Harrises of those days, but to us, all this and more is offered almost for the acceptance. Need I say that he who fails to appreciate this difference, or refuses to manfully meet the long array of obligations devolving upon him, is unworthy of his calling, and of his position, however humble it may be.

Fifty years ago, no other demand was made upon the rank and file of the one hundred dentists in America, than ingenuity, and the cunning of hand-craft sufficed to furnish. But to-day all is changed. A trade has given place to a glorious science; a divine art, and the dentist of 1870 needs as good natural endowments, with as high mental culture, and as close application to the deeply underlying principles of his profession as do the disciples of law or general medicine. Founded upon a knowledge of Metallurgy; the principles of Natural Philosophy and Mechanics; a fair acquaintance with Anatomy, Histology, Physiology, Pathology, Chemistry and Therapeutics, nothing less than an earnest and a studious nature will make him master of his calling, and give him that confidence in himself and his resources that insures the successful practitioner.

My friends, have I overdrawn the picture? Have I added one line more than is needed to make up the sum total of what should be your attainments and mine, or of what should be the qualifications of any young man entering our profession? This is an important question for our consideration. In my own mind it was answered years ago. The acquisition of my profession has not proved to me the lightsome task I once esteemed it; but though I brought to it youth, earnestness and ambition, I have ever found the gain of each year has only served to open my vision to other fields, yet to be occupied before the seal of mastery can be set. I do not propose in this paper to sound any uncertain note, or yet to take any position the nature of which can be doubted, or yet to give any false alarm.

If the observation of years, and the spirit of the letters I have read to you, are worth anything as guides, then I am justified in saying that we need a reform in our profession, and that the strong influence of public opinion, and the arm of the law should be evoked as a guard and protection. Why should members of our profession shrink from this course? Are the men in our ranks higher, and are we stronger than the professions of divinity, general medicine and jurisprudence? And yet each of these are encircled as closely as a walled city by one or the other of these influences. Dentistry alone, of all the professions, is the open field of occupation for incompetency and ignorance. Is it any wonder that quacks and charlatans are scattered all over our broad land, and that the work of devastation steadily goes on, though ten times ten thousand outraged mouths yearly cry out against us, while our profession, which in its remote and approximal relationships, takes such fast hold of human weal and woe, is degraded in so many instances to the trade of butchery, and the lowest level of hand craft?

It is is estimated that there are sixty thousand practitioners of general medicine and surgery in the United States, and that nine-tenths of these are regular graduates of medical schools, while more than a third of this number have been the recipients of a scientific and classical education. Our own special division of medical science counts upwards of eleven thousand practitioners.

Of this number there have been graduated 662 by the Baltimore College; 223 by the Ohio College; 483 by the Pennsylvania College; 153 by the Philadelphia College; 40 by the New York College; 26 by the Boston College; 30 by the Missouri College; 38 by the New Orleans College and 18 by the Harvard College; 1,673 graduates in all, or hardly more than one in seven who have evinced by their actions that there is anything in the profession of dentistry, the mastery of which requires any other preparation than the ordinary routine of office practice will readily furnish.

Is this anything to be proud of? Is this making dentistry the peer of medicine and law? I confess I cannot get up any enthusiasm over these facts, or feel that despite the many triumphs of individual members, our profession, as a whole, is making good its boastful pretentions. It does not matter to you and me what men in the past have accomplished, or what men far removed from us in point of culture and education are doing now to honor our profession, unless we take fast hold of the results of their labor, and by a thorough assimulation of them, make them our own.

There is no disguising the fact, the action of each of us in selecting dentistry for our calling in life, is a plain declaration that we esteem it the merest trade, easy of mastery by any other than a blockhead, or else that we look upon it as the full relationship of any and all the divisions of medicine and surgery, and only to be acquired and excelled in, through the close and and painstaking studentship that characterizes the successful man in any profession. I do not by this, mean to be understood as assigning College graduates to the one class, and all who are without dental diplomas to the other. By no means. To my certain knowledge there are blockheads and quacks in our profession who are, and from the very nature of their organizations, always will be quacks and blockheads, in spite of yard long parchments, while it is well known there are many bright ornaments to the dental profession in every State, whose names have never been undersigned by College faculty. All very true; but this does not absolve honest men in our profession from the obligations they are under, to it.

No man in our ranks who, unaided by extensive reading or College lectures, has worked out a successful practice, but is an object of anxious regard to his younger brethren; and well may they, and the students he is ushering into professional life, reason that if the solid rewards of labor can be thus gained, why may not they pursue the same course. This is but natural, as it also natural for the young and uninitiated in any calling to overlook the painful toil, and often times world of humiliating failures that must be met and conquered before success can be thus achieved. As evidence of an element only too rife in our midst, a student of mine was not long since told by a young practitioner that he would not give a dime for all the books upon dentistry, or a penny for its theories; *practice was all he wanted.* This coming from an accredited and boastful young man, who cannot for the life of him give the names and authors of our common text books, and who stands avowedly aloof from such gatherings as the present, lest his shallowness should be exposed, speaks volumes at a time like this. And another of very much the same standing, though older in his practice, unblushingly assured me that it was pretty sounding, this talk about professional standing, but for his part he preferred bread and butter for his family, and should take such a course as would secure it, regardless of any "code of ethics" or opinions of others. Unfortunately these are the thoughts and determinations of many, and are like to be those of many more.

Short sighted policy that cannot see that failure to develop one's greatest power of usefulness, is the surest way to debar the highest rewards in any calling. I can safely challenge the world to show me a dental practitioner in whom sterling honesty of character is united with high professional attainments, that has not been the recipient not only of honor and regard, but also of that other reward which sweetens labor—gold.

Careful men in our ranks estimate that there are some two thousand persons in the United States calling themselves dentists who, within the last half score of years, have ridden roughshod and unwashed into our profession through the great highway of vulcanite and cheap dentures, and who to-day are not only dishonoring the name of dentistry by their glaring pretension and palpable deficiences, but cursing humanity by a wholesale forcing of their ill made wares upon an unenlightened and deluded people. These are the men who fluant their guady handbills at every street corner; who flood-house and shop with outrageous pretensions to knowledge, the first rudiments of which they bid fair never to possess; who in their stereotyped advertisements, practically assure the public that a year or two of laboratory studentship, oftentimes only of a few months, fits them for a successful crusade against all the ills dental organs are heir to, and warrants them in a general slaughter of the innocents under cover of chloroform, ether and gas, and who can boldly *guarantee you entire satisfaction in every operation.* These are the men, found in every State of the Union, who assure you that vulcanizers are the great invention of the day, and vulcanite the greatest blessing vouchsafed fallen humanity. These are the men who making gas and ether the pivots upon which their whole practice turns, extract their twenty, thirty and even sixty teeth daily, that thereby a knowledge of the beneficient qualities of this delectable compound of *gum*, *sulphur* and *mercury* may be more widely extended, and their dear patients thus spared the "*extortionate*" demands of some hard working, conscientious practitioner, who unfortunately believes that God's wisdom and handiwork is greater than man's. These are the men who fill all sorts of cavities in all classes of teeth, with amalgam and artificiel; gravely assuring their trusting victims that it is just as good as gold, while it costs only half as much.

But enough! I only waste words in thus attempting to delineate characters you are all familiar with. Their devilish work speaks for them, and is scattered all over our broad land. and their baleful influence presses with the weight of a mill stone upon our whole profession, daily standing as an impassable barrier before the purest and highest efforts. What shall be done? The evil is before us, and it must be met. If this class is numerous now, what will the next ten years bring us to? The same open gateway is before them; the same class of deluded dupes stand ready to receive them.

Already these worse than charlatans and quacks swarm in upon us as did Austrian pandoras upon Great Frederick's harassed and bleeding armies, and unless we, as did Frederick, strike our blows for their dismemberment or utter annihilation, not the memory of Fox or Harris, or fame of Owen or Tomes, or scores of Dental Colleges can save us from derision and scorn. The world furnishes but few samples of reform, or great good accomplished, save through a spirit of self-sacrifice and a willingness to labor. This well trodden pathway alone is open to us now. Dentists of honor and integrity owe it to themselves that they became such in the broadest and truest signification of the term. To this end professional standing must be sought for, labored for, and a high and noble spirit of emulation fostered and encouraged, not only in themselves, but in their brethren. True dentists of 1870 owe it to themselves and their profession, that their title of doctor has been well earned and is legitimate, and not extended to them solely through the courtesy of a good natured public. Here is the pathway of honor for willing feet to walk in, and here where the spirit of self-sacrifice is needed. There is toil and self-denial in this same highway, but the weariness it brings is the sure harbinger of gathering strength, and the thrice proven prophet of coming gladness. I do not advocate dental collegiate education because I esteem this once accomplished, all has been done. By no means. This is but the beginning, and its greatest value will ever be in its moral effect, and the power it has to sharpen vision to hitherto unknown defects, and in opening unthought of fields for future occupation.

That man is barren of manhood's true ambition who can put away a busy practice for months, and betake himself to the routine of lecture and study without coming from the scene of his labor and triumph with brain and hand stimulated to higher and better efforts. Here should be the beginning of reform. Already hundreds of earnest, thoughtful men have directed their footsteps towards the Mecca of their hopes—Dental Schools—beacon lights of our profession, stamping themselves by the act as the friends of education and advancement, and where hundreds have gone, thousands are needed. Let there be a thorough separating of the wheat from the chaff; a whole hearted coming up to duty; a dividing line drawn that shall be seen and felt, and this alarming influx of drift-wood shall be stopped forever. It needs no prophetic vision to foretell our future. The handwriting upon the wall is in no mystical character, but can be known and read of all. To the honorable man and patient toiler it tells of hope, while to the indolent and the knavish it speaks all too plainly of the coming time when the mask of false pretention shall be torn away by an educated people, and they shall stand forth in all their native deformity.

Already several of our States have spoken in their might, and by the enactment of just laws throw a shield of protection around abused and suffering communities, and it needs only a passing knowledge of events and principles governing our calling, to speak with certainty of the day when the same wholesome legislation shall prevail all over our broad land. May love, truth and justice speed it.

ARTICLE II.

Abstract of Proceedings of the Lake Erie Dental Association.

This Association met in Meadville, Pa., June 6th, at 10.30 A. M., Dr. G. B. McDonneld, President, in the chair. In the discussion during the sessions Dr. Robbins said that the chemical theory of decay is the accepted one, the old theory being that decay proceeded from within outward; but now that it proceeds from without inward; thinks we have a combination of chemical and thermal agents causing decay by the decomposition of food lodged about the teeth. So the limestone of houses in eastern Pennsylvania crumble and disintegrate under the thermal and chemical influences of the atmosphere. Teeth resist chemical action better than do the other animal tissues which are constantly changing;

but the teeth have not the same power of repair which belongs to the other tissues. In order to understand the chemistry of the teeth we must understand general chemistry. Lime salts should be administered through the food, as in brown bread, lime water in white bread, and directly, as hyphosphite of lime, &c.

Dr. Ansart mentioned that in South America a Chinese Coolie who would eat no fruit but lived on meat, bread and rice, had excellent teeth, while the other Coolies, who eat much acid fruit, had crumbling teeth, like those of the natives, yet the enamel in the first case was not so thick as that of the natives.

Dr. Allen had lived in the South Sea Islands; but never known a native to have the toothache, but where he was there were few acid fruits. The health of these islanders was generally good; they had no fevers, but had pulmonary diseases; they took great delight in bathing. Among the Indians of Michigan he found many bad teeth, but they lived much as the white men did.

Dr. Wallace had lived in Valparaiso and found the teeth of the South Americans all more or less decayed. The half breeds were much afflicted; came to the conclusion that the direct cause was a hot drink called Matte. The front teeth were most affected. Those who used improper food had a different decay; those articles which had sulphur in them formed sulphurous acid, which, taking oxygen from the atmosphere, formed sulphuric acid, and this produced decay.

Dr. G. W. Nelson read an essay on the "Management of Children's Teeth.

Dr. Carroll said we never should extract the deciduous teeth before the time of the eruption of the permanent teeth if it is possible to avoid it. Would treat exposed nerves and fill as in permanent teeth. For filling these temporary teeth he likes tin, which can be put in quickly; after tin Hill's stopping, which must be renewed occasionally. Has extracted before the time for the eruption of the permanent teeth when there are well defined cases of alveolar abscess;

thinks there is a tendency to contraction of the jaw on the premature extraction of deciduous teeth.

Dr. G. Elliott finds great difficulty in using gold or tin in deciduous teeth; thinks in some cases amalgam well prepared makes as good a filling for deciduous teeth as we can get; does not advocate the general use of amalgam; uses oxy-chloride of zinc most.

Dr. Ansart never uses amalgam in children's teeth; prefers Hill's stopping and Guillois' cement.

Dr. Wallace—One condition of deciduous teeth is where the permanent teeth appear before the deciduous teeth are properly disposed of. Permanent teeth come in a wrong position.

Dr. Robbins—Management of children's teeth includes the permanent teeth. Six year molar is usually the first tooth coming under the dentist's care. Parents often think it a temporary tooth and neglect it. We should treat and preserve this molar as well as all other permanent teeth; thinks that the shortening of the jaw and change of facial angle of the Anglo Saxon race is caused by the early extraction of permanent teeth. Nature's model is the best; we cannot restore the contour of the face after the extraction of cuspids; should avoid amalgam if possible, but would use it rather than extract.

Dr. C. D. Elliott has better success with cement plombe than any other plastic filling. Gave a case of nine months standing, which is still good.

Dr. McDonneld mentions an oxy-chloride of zinc filling, which has lasted two years. The density of *os-artificiel* depends on the method of manipulating it.

Dr. Ansart called for information concerning the lancing of children's gums.

Dr. Griffin—When the gums are tumified, inflammation high, and children almost in convulsions, would not hesitate a moment to lance. Thinks there is much virtue in Homœopathic medicines in these cases.

Dr. Ansart would invariably lance when the membrane is tense and the inflammation is high, passing a sharp lance directly down to the tooth on the line of the cutting edge.

Dr. Dunn said that cicatrices yielded more readily to pressure than normal tissues, so that lancing did not retard the eruption of the tooth.

Dr. G. Elliott thought that more pain proceeded from the tension than from congestion.

Dr. Wallace said that the congestion was caused by pressure. The arrested blood corpuscles pressing on nerve tissues cause pain. This condition was relieved by lancing. Discussion closed.

Dr. Carroll then read his essay on "Alveolar Abscess," describing its various forms and the treatment required. His rule for applying local remedies, was to choose that most agreeable to the patient, whether hot or cold. Discussion followed. To illustrate, Dr. Carroll took the case of a central incisor. Would inject an escharotic. When all inflammation was subdued and the fistula healed, would fill the root solidly, and, if the trouble is renewed, would open through the alveolus, and remove the sac mechanically.

Dr. Templeton has had more success with this method than with any other, but fills before treating. Treatment through the canal is not effective unless we can force the creosote through the fistulous opening. After breaking up the sac, applies creosote. Some times uses an anæsthetic before operating. If this treatment fails, it is because we do not reach the spot when opening through the gum.

Dr. McDonnald has been treating abscess for six years, and is confident that he has cured 99 in 100 cases in the superior maxilla. In the inferior maxilla is not so successful. Injects an escharotic, usually creosote, through the pulp canal. Almost all cases of failure are due to an impaired condition of the blood, or as in the inferior molars, to the difficulty of reaching the sac. The escharotic changes conditions and destroys life, the absorbents then carry off the effete matter if the person is healthy.

Dr Robbins remembers when it was considered unprofessional to treat alveolar abscess and when he was called a fool, by professional men for attempting it We must use the term cure for want of a better one In some cases apparently healthy, it is difficult to decide why we do not cure. In others a constitutional taint, like syphilis is easily detected. When the foramen of the canal is small and there is no fistula, must make an opening through thorugh the gum. The best instrument for this purpose is a sharp Gates' Drill which goes through the process easily and brings out the cuttings, leaving a smooth round opening. When, after being apparently cured, inflammation supervenes,may often arrest it by counter irritannts upon the gums. The action of Iodide of Potassium in these cases is illustrated in Dr. Watts' Chemical Essay.s The Iodine and Potassium are like coupled dogs harmless till they reach the point of obstruction, when they are released. The Iodine goes off with oxygen as Iodic Acid, while the caustic potash disolves the obstructions.

Dr. Geo. Elliott considers the treatment of alveolor abscess in the same light as other surgical operations. After breaking down the sac, introduce remedies which resolve the material and prepare it to pass out, then keep the fistula open till the cavity is filled up by healthy granulations proceeding from the bottom to the top.

Dr. Herrick read his essay on "Mechanical Dentistry."

Discussion—Dr. Templeton. To obviate air holes in plaster models, soaks the impression half an hour in water, having thinly coated it with varnish to give color, and pours without oiling.

Dr. Pierce uses analine in the water to color impressions, and uses Silex for parting.

Dr. C. D. Elliott when taking impressions, uses the plaster thin if the palate is spongy, so as not to push away the soft parts. If the parts are firm mixes the plaster thicker. When taking impressions for partial sets, if the natural teeth are ill shaped, oils the impression cup before mixing the plaster. After taking the impression removes the cup first and splits the plaster before removing it.

Dr. McDonneld thinks that the expansion of impression results from having too thick a body of plaster, to be remedied by using wax first and over that a thin coating of plaster. After taking the impression puts in water to prevent heating which causes expansion.

Dr. Dunn thinks expansion takes place in the vulcanizer.

Dr. Templeton—To get a good articulating bite directs the patient to sit upright and stretch the muscles of the neck before closing the jaws.

Dr. Ansart—For partial sets takes impressions before extracting roots, &c., and carves out the plaster—getting good results.

Dr. C. D. Elliott has put up one set of teeth on the Hyatt Perkins base. If it will witstand the fluids of the mouth, and wears well, it will supercede rubber. Put up the case in 1½ hours.

Dr. Wallace describes the method of using pyroxyline, which he prefers to rose pearl. It is composed principally of gun cotton and ether submitted to heavy pressure which presses out the ether. For soldering it, filings of the same material itself reduced to a pulp by ether, are used.

Dr. Robbins—The Hyatt Perkins base contains camphor. Is afraid of the effect of camphor on the mucous membrane. This base is inflammmable as is the case with all collodion bases.

Dr. Tenney has cast Aluminum plates. The process requires great nicety of manipulation to obviate the effects of shrinkage when cooling. After casting, must jar the flask and plunge two thirds of it into wet sand where it must be rotated continually, the plunger being pressed hard against the mouth of the flask, the upper part of which must be kept warmer than the lower. Aluminum melts at about 1500° gets better fitting plates of Aluminum than of rubber.

Dr. Hawxhurst swages thin plate of Aluminum on type metal dies, the shrinkage of which is about right. Fastens the teeth with Watt's and Williams' metal, columbium. Drills holes in the alveolar ridge, countersinks and fills them with pure wax. Proceeds as for a rubber case, using powdered pumice in the plaster to prevent shrinkage; heats the flask almost to the melting point of the metal; then having the metal as nearly as possible at the melting point, pours the metal and jars the flask.

Dr. Tenney suggested the use of parafine instead of wax to fill the countersinks, as it will disappear entirely when heated.

Dr. Robbins thinks the safest and best way to use rubber is an attachment to gold plate. Passes a continuous rim of gold around inside the teeth; does not perforate the plates but solders gold loops to the plate to hold the rubber. This makes the best denture, being cleanly and strong and the thermal changes are good.

Dr. Harrison gave his method of resuscitating patients who are sinking under the use of chloroform. He passes the feather end of an uncut quill down the throat and gives it a rotary motion. The patient will revive instantly, there being sympathetic connection between the glottis and the heart. Has always succeeded in this way.

Dr. Robbins—When electricity is applied directly to the tooth, it is more unpleasant than when applied to the gum —Have more direct and concentrated current when the pole is applied to ganglia than when it is held in the hand.

When applying the rubber dam it is often convenient to use the string in a half hitch. Another way to hold rubber in place, is by a wedge pressed between the teeth by a perforated forceps. The rubber dam is the best protection to the dentist against fœted breath of patients. Dr. Butler, of Cleveland always applies the rubber dam before beginning to excavate; can remove the debris with a dry syringe. To avoid danger of periostitis and abscess from the forcing of fluids through the foramen of the apex of the root, when filling, use the hot air syringe, which will dry out the root canal better than anything else.

For trimming down approximal fillings, finds a sickle shaped, knife-edged instrument very useful. Rouge cloth gives a good finish. Chalk gives the best final polish.

After filling on the grinding surface, always cuts down the gold until the teeth can close without striking the gold, before allowing the patient to leave the office.

Advocates the use of steel as a material for mallets. Likes nickle plating to prevent rusting. Uses thin shellac varnish for the same purpose.

Dr. Hawxhurst suggested the use of weak collodion to prevent rusting of instruments, the weaker the better, provided a film is formed.

Dr. Ansart says that Dr. Harvey of Buffalo, when applying the rubber dam over lower molars, in difficult cases, attaches a small piece of leather to the string and places it so that the leather rests against both the rubber and the tooth, and prevents the string and rubber from slipping.

Dr. Ansart described Bornwell's electric mallet also an instrument which can be attached to any plugger, and by means of which gold can be used in long strips.

Dr. Hawxhurst said the principle use of Green's pneumatic engine was for trimming down gold and cutting retaining pits—the pneumatic plugger was not so successful.

Dr. McDonneld, after filling approximal cavities, tries to leave no space between the teeth after the operation is finished; otherwise food will lodge between the teeth and be very troublesome.

Dr. Hawxhurst spoke of teeth worn down by occlusion, and asked for a remedy.

Dr. McDonneld always fills such teeth with gold.

Dr. Wallace had such a case where the superior incisors were worn away, and the inferior incisors beveled very thin and sharp. He built up the bicuspids, and cut down the inferior incisors 1–16 of an inch.

ARTICLE III.

Extracting Teeth During Pregnancy.

By Dr. H. E. Robinson.

It seem to be laid down a rule by nearly all surgical writers, and indeed is held in practice by nearly all surgeons and dentists, that teeth should not be extracted during pregnancy. Now we are all aware that the uterus is closely connected by the system with the teeth, and that this connection seems more sensitive when the uterus is in a gravid state. But it has always seemed to me that this fact was but another argument in favor of the extraction of the aching tooth, especially when the pain is caused by chronic periodontitis. I am not in favor of indiscriminate extraction of teeth, but will strive as hard as any dentist to save a tooth whenever possible. This should be done in all cases. But for periodontitis, I know of no surer cure than extraction. In the past two years I have had five patients who were pregnant, come to me aflicted with inflammation of the periosteum, some of whom had been kept awake for two nights, and in each case I extracted the offending tooth without any bad result whatever. In the last case, the woman was within about a month of her time for delivery, but she was suffering so acutely from the diseased tooth that I very carefully extracted it, and all was well. Therefore I conclude that where no other remedy is possible, extraction is better than prolonged suffering.

SELECTED ARTICLES.

ARTICLE IV.

The Diet Treatment of Decayed Teeth.

Dr. J. M. Porter discusses this subject in the *Dental Register*, as follows:

"It would seem from the many articles published in dental journals, advocating the use of phosphate of lime, in all cases where that constituent seems to be deficient in quantity in the teeth, that many dentists regard this as the only successful treatment in all such cases. And believing that many are laboring without securing the desired results in using the remedy, we will endeavor to give a reason for their want of success.

"The observing dentist, who never makes an operation in the mouth, without examining closely the cause of decay, will many times see that constitutional defects are having as much influence in producing decay, as such local influence, that are sometimes present.

"It is well known that loss and reproduction is constantly going on in the body, that whether formatoin or destructive assimulation predominates, will depend upon general systematic conditions, and *not* upon the amount of any *single element* taken as food. Scientific investigations prove that a given amount of carbon, nitrogen and hydrogen taken as food into the organism will not produce the same amount of physical force in different persons. We may go further and presume that the same amount of food is equally digested in both cases, and absorbed into the circulation and carried into the tissues, and even then we know that the same benefits are not derived in all cases. And further, it is conceded that any kind of nutriment entering the tissue is not proof that it all enters the cells where the greatest amount of oxidation takes place. If, then, a portion of our daily food enters the portals of the tissues without entering the inner chambers of tissues, but passes out again unchanged by a reversal of the forces that carried it in, thereby becoming dead instead of living matter, will giving phosphate of lime have any beneficial influence, supposing this element seems to be deficient in the teeth? Can you relieve such a condition by giving a single element of food, when nature refuses to partake of the food already digested? On the other hand we will suppose that excessive waste is being carried on to such an extent that any part of the body suffers as a result. Will simply giving a single article of food have any influence in checking this excessive waste? If so, upon what principle does it operate?

"From observation and experiment, we have found that proper food (that is, such food as contains the elements which seem to be deficient in quantity), if used judiciously, will remedy a defect of this kind, *if any change of diet can.* If nature refuses to appropriate *food containing such elements as are deficient*, how can we expect better results when we give a single element of food?

"Every dentist who is observing will see a marked difference in the structure of teeth, as he operates in the same mouth for two or three successive years, when the patient has been living on the same diet, and in the same climate, and seemingly in perfect health all the time, and when frequent tests convince the dentist that no local influences are present that could produce these changes.

"We can only account for these changes by presuming that at one time nature refused or failed to appropriate the food digested, for we surely cannot attribute it to any change of diet, when there was no such change.

"In conclusion we claim that it is impossible to modify general systematic conditions by giving as food a single element, which seems to be deficient in some parts of the body. We cannot force nature to appropriate food by such treatment, neither can we check an excessive waste. This thing of treating symptoms is in our opinion very much like reporting personal experiences at dental meetings, neither having the desired influence."

ARTICLE V.

On one of the Causes of Death from Chloroform.

Read before the New York Journal Association.

By Andrew H. Smith, M. D., of New York.

Mr. President: I will not absorb the time of the Society in an elaborate view of the different theories which have been advanced as to the modes in which chloroform produces death. The subject is a hackneyed one, and is doubtless familiar to all present. The facts involved are stated with great clearness and precision by Dr. Squibb, in a paper read before the State Dental Society at its last session. He states that the narcotism of chloroform may be symmetrical or asymmetrical. If symmetrical, it invades the different systems and organs in a regularly progressive order, the heart and respiratory organs resisting their influence the longest. But, if carried too far, even these may succumb, and death is the result. On the other hand, when asymmetrical, some organs are affected to a disproportionate degree, and if they be organs whose function is immediately necessary to life, as the respiratory muscles or the heart, a fatal result may take place before the general narcotism is developed.

It is generally stated that in much the larger proportion of cases, death results from cardiac syncope. Dr. Snow considers this to have been the case in all but six of fifty cases quoted by him in which the symptoms were more or less fully described. In nearly every instance, however, the only evidence that the heart had ceased to act was, that the pulse could not be felt at the wrist. But this test cannot be otherwise than fallacious, for it is a matter of daily observation that the heart may continue its action for some time after the radial pulse can no longer be perceived.

In two cases in which death from chloroform occurred under my observation, respiration ceased suddenly before unconsciousness had taken place, the action of the heart continuing for a considerable time. In several instances I have unintentionally destroyed animals with chloroform while practising vivisection, and in every case the pulsations of the heart continued after respiration had ceased. Dr. Snow seems to have observed this more frequently in animals than he is disposed to admit its occurrence in the human subject, but the numerous instances in which impending death is averted by artificial respiration seem to point to the breathing as the function first impaired in a considerable proportion of cases in man as well as in the lower animals.

But the object of this paper is to call attention to a mode of death which differs both from cardiac syncope and from paralysis of the respiratory muscles. I refer to *direct local anæsthesia of the lungs.*

It is well known that the movements of respiration, although to some extent under the influence of the will, are chiefly reflex in their character. This is shown by the fact that they continue during the unconsciousness of sleep, of anæsthesia, or of coma, and that beyond a certain point they are not under the control of the individual. Now, every reflex movement requires as its antecedent an impression upon a sensitive nerve. In this case the impression is chiefly upon the pulmonary nerves, and results from an excess of carbonic acid and a deficiency of oxygen in the blood. That the origin of the movements is peripheral and not central is shown by the fact that, that section of the pneumogastrics greatly reduces the frequency of the respiration, which would not be the case if the unaerated blood acted directly upon the respiratory centres as strychnia does upon the cord.

The character of the irritation which excites the movements of respiration may be appreciated by simply holding the breath. It is a sensation entirely peculiar, and is nature's demand for air just as hunger is nature's demand for food. By the French it is called the *besoin de respirer*, the necessity for breathing.

Now, in a certain proportion of cases, I believe that chloroform destroys life by its local anæsthetic effect upon the lung, rendering it insensible to the presence of carbonic acid, and thus removing the stimulus to respiration. The vapor of chloroform is a decided local anæsthetic, especially when applied to a mucous surface. It is well known that the senses of taste and smell are abolished at a very early stage of chloroform narcosis, and this effect is universally attributed to the local action of the chloroform. Dr. Squibb, in his paper already referred to, calls attention to this local anæsthetic effect upon the larynx as explaining the fact that the glottis does not close to prevent the passage of anæsthetic vapors as it does in the case of other irritating substances. Precisely this effect, extended to a large portion of the lung, may act, as I conceive, to prevent entirely the impression upon the nerves which is required to excite respiratory movements.

An analogous result is observed in opium narcosis, in which the sensibility of the lungs becomes more and more blunted, requiring a progressively-increasing accumulation of carbonic acid to cause the necessary stimulus to the respiratory act. Hence, we find the respiration becoming slower and slower, until it finally ceases altogether. The only difference is that, in the case of the opium, this result is brought about secondarily through the medium of the circulation, and the lungs simply share in the general anæsthesia, while with chloroform we have, in addition, the local effect from the direct topical action of the vapor.

It is to be borne in mind that the lungs partake of the general anæsthetic effect of the chloroform to an exceptional extent, as the blood with which they are supplied is charged more highly with the anæsthetic than the blood in other portions of the body. Now, the experiments of M. Caze, of Strasbourg, show the anæsthetics act rather upon the peripheral nerves than upon the nerve-centres. He states that a limb can be protected against the influence of chloroform inhalation by merely compressing the main artery that supplies it. Immediately on removing the pressure and restoring the circulation, the limb becomes insensible. If this be true, the lungs are evidently exposed to a disproportionate action, since the nerves are bathed by blood containing a much larger proportion of the anæsthetic than is contained in the general circulation. If we now add to this the effect of which chloroform-vapor exerts upon the nerves by its direct local action independently of the circulation the surprise is that perfect insensibility is not the rule rather than the exception.

It occasionally happens in opium narcosis that the anæsthetic effect upon the lungs is developed out of proportion to the narcotic action upon the sensorium, so that the respiration will become alarmingly slow while the patient is still sufficiently conscious to quicken his breathing at the command of the physician. A case of this kind is described by Dr. J. C. Smith, in the *Medical Record* for January 2d: "Some five years ago I saw a case in which the result occurred from the use of chloroform. I was giving the chloroform very slowly, the object being merely to allay pain, when suddenly the patient ceased to breath, without having been at any time wholly unconscious. Very much alarmed, I was about to begin artificial respiration when I observed that the eyelids were trembling, and that the general expression of the countenance was not that of profound unconsciousness. Laying my hand roughly upon the shoulder of the patient, I said in a sharp, quick tone, '*Breathe*,' and to my great relief she responded with a full inspiration. But there seemed to be no disposition to repeat the effort voluntarily, and for several minutes each respiratory act was performed only at my command. I waited several times, as long as I dared to, to see whether she would not breathe spontaneously, and carried the experiment to the limit of what seemed to me justifiable. I do not assert that this would have proved a fatal case if left to itself, still less if the usual restorative treatment had been resorted to; on the contrary, I think it probable in this case, when the accumulation of carbonic acid in the blood had reached a certain point, the anaæsthesia of the lung would have been overcome and respiration would have been resumed. Still, the case differed so decidedly from those of momentary suspension of breathing which we often see when ether is employed, that I think the experiment would have been full of danger.

I may add that about two years ago I endeavored to determine by experiment what would be the effect of producing within the lungs the peculiar partial anæsthesia which results from the application of tincture of aconite to the surface. With this view I caused an animal to inhale for a moment the tincture of aconite in the form of spray, using Richardson's nebulizer, The respiration became at once very much embarrassed, and death resulted after a few hours. But I was unable to separate to my own satisfaction the local action upon the lungs from the general toxic effect of the drug, which may have been absorbed through the pulmonary membrane in quantity sufficient to produce death.

Death from pulmonary anæsthesia would be more likely to result from a large amount of vapor being inhaled at a single inspiration. This may readily occur when the chloroform is poured upon a towel folded in a number of thicknesses and already warmed by the breath of the patient and by contact with the face. If the towel is formed into a cone, the cone may be well filled with the almost pure chloroform vapor. When this is suddenly applied to the face of the patient, the first inspiration must include an undue proportion of the anæsthetic. Hence, an inhaler like that of Dr. Sayre, in which the chloroform is vaporized by the current of air drawn through it, would afford much greater safety.—*New York Medical Journal.*

ARTICLE VI.

Are Artificial Teeth Capable of Producing Salivation?

By P. A. O'Connell, M.D., Boston.

My attention has been called to a case which points to the possibility of the occurrence of *salivation* and the *constitutional effects of mercury*, from the use of artificial teeth, and the importance of the circumstance has seemed to be sufficient to justify a mention of it; so that interferences may become either corrected or confirmed by the observations of others of the profession.

The patient, in the case referred to, was a lady, who had used the artificial teeth that are now accused of having produced trouble, between two and three years. Before using them, her general health was good. While using them her health became poor (*wasting away*), and proceeded gradually from bad to worse, resisting every mode of treatment. She exhibited no special cause of illness, until the occurrence of salivation and sore mouth drew attention to the teeth. Then it was found that the plate upon which the teeth were mounted, which was a suction plate of the red rubber kind, presented a corroded appearance on the surface which came in contact with the roof of the mouth. And the circumstance that this kind of rubber plate is made up to a great extent of the sulphuret of mercury, suggested the possibility of the general ill health resulting from this cause.

The teeth were removed, of course. The mouth became well speedily; and without any further treatment the lady's general health began to improve immediately in a very remarkable manner.

Upon mentioning this case to some medical gentleman, it recalled to the mind of one of them another instance of salivation, resulting apparently, from the same cause. Here too, the disuse of the red rubber plate allowed the mouth to become well; and a set of teeth mounted on dark rubber was used afterwards without any inconvenience resulting.

The red rubber which is used in making the plates upon which artificial teeth are mounted, receives its color from the sulphuret of mercury, which is mixed with it very intimately, and constitutes generally about one-third of the mass. This preparation of mercury is very insoluble, resisting, in the chemist's laboratory, the strongest acids; and it is difficult to understand what combinations can have taken place in the mouth to render it liable to absorption.

It is rendered soluble by mixture with the sulphide of potassium, but one would suppose that it would be protected sufficiently by the rubber with which it is thoroughly mixed and baked.

Are artificial teeth under any circumstances, capable of producing salivation?—*Boston Med. and Surg. Journal.*

ARTICLE VII.

Surgical Diseases of the Mouth.

Glottis is an inflammation of the tongue, being the result, in general, of mercurialization. The tongue becomes enormously swollen, enlarged from the infiltration of serum; the increase in size, in some cases, having been known to threaten death by suffocation. The accompanying symptoms are, profuse salivation, inability to swallow, or even speak, with the organ hanging out of the mouth, as in prolapsus. The difference is this, in glottis there is a comparatively sudden invasion, whilst the latter is gradual. Our remedies, particularly *Apis*, act like magic in these cases, and the harsh allopathic procedure of slitting the tongue is seldom if ever called for.

Prolapsus of the Tongue.—This is a condition in which the tongue hangs out of the mouth permanently. The patient has no power to retain it in the mouth any length of time. Prolapsus may be congenital, or acquired. The teeth, and even the jaws, are frequently pushed forward, the edges of the teeth meeting at an angle very similar to that noticed in the horse. Should this condition be allowed to remain unimproved, the jaw will be permanently distorted. There are cases of evident hypertrophy of the whole organ, but the fault usually seems to lie in a want of power in the retractor muscles. The tongue is of a dark or purplish color, dry, much swollen, and a constant dribbling of saliva. I am not certain that this is a disease—if such it may be called—that is curable by medicine alone, but think operative measures will have to be conjoined with the other treatment. Still, it being a case in which there is no great urgency, time enough may be taken to test the remedies. This is one of those diseases which are of so rare occurrence, and the results of which are so very unsatisfactory, partly from the fact of but few being willing to give time enough to properly test the matter, that we know but little about the effects of remedies. We have to reason by analogy, and such reasoning in medicine is far from being reliable. I am not cognizant of a single case having been reported where a *perfect cure followed the use of remedies.*

Abscess of the Tongue.—This is also a very rare disease, and is not easily diagnosed when seen. Like all other similar diseases, the pus must be evacuated at once. Erichsen speaks of a case in which "there was an elastic fluctuating tumor of slow growth, about the size of a small plum, situated deeply in the centre of the tongue." I never saw a case, but have been informed that as the tongue is not discolored is not at all easy to tell whether it be an abscess or a tumour from some other cause. Dr. Duncan had a case of abscess of the tongue. The abscess was situated in the centre of the tongue. It was about the size of a large pea and presented a red base; cause, cold; remedy, *Hepar.*

Ranula is a most interesting form of a tumor, found under the tongue, to one side of the frænum. There are two varieties, first, a cyst, containing fluid, and often as large as a walnut. The fluid is serous and of a glairy nature; the walls of the cyst are very thin, almost transparent, and small vessels can be distinctly seen ramifying on the surface. Many consider this a simple dilatation of Wharton's duct, but that is not the general belief. Some pathologists, among them Paget, think many of these ranulæ, "are probably formed by dilatation of the sub-maxillary duct, obstructed by calculi or otherwise; others by abnormal development of distinct cysts, or possibly of a bursœ between the muscles of the tongue." The second form is that of a true encysted tumor, the contents of more or less consistency, and walls firmly adherant to the adjacent parts.

Tumors of all varieties are found in this situation, but they do not need any special mention, but should be treated according to the indications.

Fissures or cracks in the tongue are found on the sides of the organ, and are usually dependent upon the irritation caused by the root of a molar tooth; at other times they are the product of dyspepsia, syphilis, &c. In cases where the general health is low, or the system is tainted with syphilis, struma, or scorbutis, these cracks are converted into large and foul ulcers, which extend rapidly, attended by offensive breath, and constant flow of offensive saliva; in fact they are true phagedœna. The surrounding parts of the organ are swollen and puffy, and of a dusky-red color. Death frequently results from the excessive discharge, and the inability to take food, though in many cases rupture of the artery is the cause.

In Psoriasis the tongue become shriveled and dry, much indurated, with the surface covered with cracks; with patches, also, on the surface, of a dirty-white color, irregular in size and shape, varying from an inch in diameter to the size of a pea. This condition is sometimes met as a manifestation of secondary syphilis, and certainly, to the eye, looks like a purely local disease as such a thing can be. Another syphilitic condition is one that has not been named, to my knowledge, and is described by Erichsen in the following manner: "A glazed and warty appearance, as if covered with a layer of boiled-sago, the mucous membrane being œdematous, elevated, and papilated, yet at the same time glassy and semi-transparent, and without induration."

Syphilitic tubercle is an indurated and irregularly circumscribed tumor, situated deep in the substance of the tongue, usually near the centre of tip, and feels round to the touch. The integumentary covering of the tumor is of a coppery or dusky red color, surrounded by cracks, but it does not ulcerate, discharge, or destroy the organ.

Cancer of the tongue so closely resembles some of the syphilitic affections of this organ that great care must be exercised in forming a diagnosis. One thing worth remembering is, that the syphilitic tubercle differs from the cancerous in being situated deeply in the substance of the part, while the latter is more superficial and is found about the edges and tip. (See Ulcers.)

Ulcers.—There are the phagedœnic, the syphilitic, and the cancerous, and may be distinguished by attention to the following signs: *Phagedœnic* or *sloughing*, rapid progress, eroding action, and no induration at the base. *Syphilitic*, indurated base, elongated, or irregular in shape, and does not rapidly extend. *Cancerous* ulcers are, circular shape, "eroded edges," and spread rapidly.

These are the main characteristics. The microscope should not be neglected, however, in examining sores in this region supposed to be cancerous. The cancerous ulcers produce all the dreaded symptoms and accompaniment of cancers elsewhere, and are very fatal. Joined to the proper cancerous disease is the inability to eat, which renders the condition of the patient more deplorable.

Abscess of the Gums is caused by the roots of decayed teeth, cold, or some other inflammation, and sometimes results in the formation of pus. It is of trifling moment, although it gives rise in many instances to considerable suffering. Remedies act very well. Evacuate the pus.

Ulceration of the Gums.—Syphilis, scrofula, cancer, or any of the conditions operating to produce similar lesions in the mouth and on the tongue, may have the same effect here.

Epulis.—This is a tumor of a fibrous character springing from the periosteum and edge of the alveolus, and implicating the osseous walls, growing up between and loosening the neighboring teeth, which it displaces and envelopes in its structure. It is most frequently met with in the lower jaw, and commonly about the molar teeth. This tumor is red, smooth, and lobulated, at first hard and semi elastic, like the ordinary structure of the gum, but after a time softening by disintegration, and ulceration on the surface, with a purulent or sanious discharge ; it appears to be simply circumscribed hypertrophy of the gum.

Malignant Epulis is soft, purplish, very vascular, grows rapidly, and is specially produced after removal. They are principally found in men advanced in life.—*Medical Investigator.*

ARTICLE VIII.

Complete Necrosis of Eight Teeth from a Blow.

By W. Geo. Beers, L. D.S.,

A little over two years ago, a vigorous young friend of mine, aged twenty, received a severe blow directly under the nose, while in the act of shouting to a fellow player during a game of Lacrosse. The upper lip was considerably cut, and the crown of the left superior central incisor was broken transversely with the pulp chamber, leaving the pulp hanging partly out of the cavity. As he insisted upon continuing the game, I improvised a barbed brooch by jagging the sides of a common pin with a penknife, and then crooking its point, and succeeded in extirpating the pulp entire, with little or no pain. I observed, as something unusual, that the projecting portion was not at all sensitive to the prick of the pin, while that situated higher up in the cavity was extremely so, and actually reflected a shooting pain along the branch of the nerve. The adjoining teeth did not present any appreciable indications of serious results from the blow, and only the remaining portion of the broken tooth and the adjacent lateral incisor were at all tender to the tap of an excavator, while there was no inflammation of the gums and the cut lip occasioned more pain than the broken tooth.

The second evening after the accident there was a slight tumefaction over the fractured tooth, and both it and the lateral were more tender at the root than the previous day. I applied two leeches to the gums, and the third day all pain had completely subsided, and at the expiration of three weeks, I ventured to insert a pivot tooth to replace the one broken; taking the precaution,—which I considered to be necessary—to prepare the root one day and pivot a few days afterwards. Up to the last day I saw him, he had never had a moment's pain or soreness in this root, but had intermittent pains of a few days duration in the adjoining lateral for over two months, feeling, as he described it, like the knitting of a fractured bone.

About a year ago he came to have his teeth examined before going to Chicago, where he had decided to settle with a newly married wife. I found the pivoted root sound; the troublesome lateral perfectly comfortable. I filled two large cavities with gold in the first inferior molars—the only fillings he had ever had—and after carefully examining the front teeth, I felt justified in prophecying for them a long lease of life. Last January he returned to Montreal, and judge of my surprise to see him come into my house nearly edentulous. The pivot tooth and root, and the adjoining lateral, perfectly free from caries, were easily moved about with his tongue and lip; the cuspids were both loose; the right lateral and the two right bicuspids had actually dropped out of the alveoli. The superior molars and all the teeth of the inferior maxillary were perfectly firm and sound, otherwise I might have suspected mercury, though there were none of the special indications of mercuralization then present; and my patient assured me on his word of honor—which was perfectly reliable—that he had never to his knowledge taken a grain of medicine in any shape or form for the last twelve years, and that he had never had any venereal disease. His parents were both hale and hearty Highlanders, and I would not consider his constitution to be one as easily irritated as some systems are.

The gum and alveolar processes had receded from the necks of the teeth, but it was very clear that the cause did not lie there. There was no perceptible discharge of pus, no pain, no tenderness. The pulps were dead, but the teeth had not assumed the dark hue noticeable in many cases of necrosis.

The alveoli had exfoliated where the lateral and bicuspids had dropped out.

I extracted the lateral and two centrals, and found, as I had anticipated, complete necrosis; the fangs denuded of living periosteum, and covered with little grey and green nodules, similar under the microscope, to salivary calculus. The change in the appearance of the cementum from its normal condition was very striking. A section of dentine of the lateral incisor, under the microscope, revealed the calcification of the dentinal fibres.

I must confess to have been sorely puzzled about this case, presenting, as it does, peculiarities seldom observed in the one mouth, and, what seems to me to be, contradictory characteristics in the course of the disease, and being marked by a complete absence of pain, and no perceptible effusion of pus. I would not have been greatly surprised to have found periodontitis and suppuration from the pivoted root, or even the wounded lateral; but I was shocked to witness the complete destruction, without the barest possibility of cure, of eight teeth, seven of which a year ago were free from decay, and presented fair appearance of a long life. Had inflammation of the periosteum supervened from the blow, the usual indications would be expected, but there were comparatively none of the simplest, and absolutely none of the most marked. The very idea I had in extracting the pulp at the time of the accident was to prevent an extension of the inflammation through its reflecting media to the surrounding membrane, and I think the rather remarkably favorable condition of the parts afterwards, may be attributed to this reason, though it is a question with me now if it might not, perhaps, have been better to have extracted the fractured tooth.—*Canada Journal of Dental Science.*

ARTICLE IX.

Michel's Process for External Tumors.

The Lancet gives a brief notice of the plan for removing tumors, purchased by Mr. Bell of M. Michel. In reply to some inquiries that have been made, the following details are added :

The preparation used in all cases where the tumor can be reached externally is made in the following way. Asbestos, as soft and free from grit as possible, is reduced by rubbing between the hands to the finest possible fleecy powder. It is then ground thoroughly with three times its own weight of strong sulphuric acid (SO_3HO), and worked into the desired shape with a silver or gold spatula. Mr. Bell remarks that the practical working of this powerful but simple escharotic is very remarkable; it destroys rapidly and completely whatever tissues lie directly beneath it, and in doing so neither causes the extreme pain which might naturally be expected, nor the local inflammation and general feverish symptoms which render similar applications undesirable.

In its application it is requisite that the patient should be so placed that the surface of the tumor is level. The adjoining parts of the skin are to be protected by a broad circle of collodion and a thick pad of soft linen. Nearly the whole surface of the tumor is to be then covered with a layer of asbestos and acid, the thickness of the latter being about half an inch for a tumor the size of a hen's egg; and to insure that the contact is uniform, the surface of the asbestos is to be covered with sovereigns. The skin beneath the mass is rapidly destroyed, a very narrow white circle marking the separation between the dead and living skin. The pulse remains quiet. The patient complains of considerable pain whilst the skin is being penetrated; it is not unbearable, however, and becomes much lessened after the first twenty minutes. Soon a slight oozing appears at some point from beneath the mass, the careful sopping up of which requires the undivided attention of the operator or experienced nurse for some hours. The length of time required for the destruction of a tumor varies with its size, its nearness to the surface, and the capability of the special tissue to resist the action of the mass; but in one the size of a hen's egg the first application may be left on from 8 A. M. till 10 P. M., when it may be removed; made up afresh to half the size and reapplied for the night, being finally removed on the following morning. The wound should appear dry, and the darker and more depressed it is the better.

The healing process then alone requires to be attended to, and this divided by Mr. Bell into (1) the stage of quiescence, (2) the suppurative stage, and (3) the healing stage, for the treatment of each of which minute directions are given. Mr. Bell is quite aware that this plan of treatment will not prevent the return of malignant disease, but he claims for it the following advantages:—1. That the shock of a surgical operation is entirely avoided. 2. That besides the tumor very little of the surrounding parts are injured or removed. And 3. That a malignant tumor when removed by means of the escharotic is not so rapidly recurrent as when it is excised.

ARTICLE X.

The Lapse.

By T. L. Buckingham, D. D. S.

In the January number of the *Dental Times* I published an article on "Reducing Gold and Silver Scraps to Plate." In giving a process to reduce the chloride of silver to a metallic state, I said that "the chlorlde should be covered with fresh water, add a small portion of sulphuric acid, then put a few small pieces of zinc in the vessel and let it stand for a day. *The chlorine will leave the silver and combine with the zinc.*" To what is stated in this last sentence one of the editors of the *Dental Register* takes exception, and thinks I have not correctly explained the changes that have taken place. His paragraph reads thus, "The closing sentence contains a lapse. The zinc decomposes the water, taking oxygen and liberating hydrogen. The hydrogen takes the chlorine from the silver. As the oxide of zinc is formed it unites with the sulphuric acid. The liquor contains sulphate of zinc, not chloride, and the escaping gas is hydrochloric acid, not hydrogen. And Professor B. knew all this as well as anybody, and he should have written more carefully in writing for the young, as he proposed to do." Now, the first part of this paragraph is partly correct, and I committed an error in not explaining the reaction more fully. "The zinc decomposes the water, taking oxygen and liberating hydrogen," and this is the first change that takes place. "The hydrogen takes the chlorine from the silver. As the oxide of zinc is formed it unites with the sulphuric acid," and the sulphate of zinc, being soluble, is dissolved in water. But what becomes of the hydrogen after it has taken the chlorine from the silver? The editor says the gas which escapes is hydrochloric acid (gas) and not hydrogen.

Here he commits a palpable error. He knows as well as anybody, and he should have written more carefully when he criticises for the young, that hydrochloric acid gas is one of the most soluble gases we have. Water at the ordinary temperature will take up nearly five hundred times its volume of this gas, so that if there was no more hydrogen liberated by the sulphuric acid acting on the oxide of zinc than the chlorine of the chloride of silver would combine with, there would be no gas escape; it would be all dissolved in the water, or until it became hydrochloric acid, as strong as we buy it in the shops. That gas does escape is evident from the effervescence that is seen while the process is going on.

The Dr. says it is "*not hydrogen.*" What is it? I contend that it is hydrogen and nothing else, and in order to verify this, I made several experiments. In an eight ounce bottle which I arranged with a cork and tube so that I could collect the gas, I put some chloride of silver, water, zinc and a little sulphuric acid, and as the gas passed over I collected it over water as we usually collect hydrogen gas. I then applied a lighted taper to the gas I had collected, and it ignited with an explosion at the mouth of the vessel, and when I passed the taper up into the gas, it was extinguished, and it reignited when I drew it out. I then introduced a glass tube drawn out at one end to a fine orifice, into the end of the gum tube through which the gas was passing, and ignited the gas at the small orifiee, where it burned with all the appearance of hydrogen. From these results I concluded it was hydrogen. If it had been hydrochloric acid gas it would have been absorbed by the water, or if it had collected in any other way than over water it would not have burned.

In order to test whether chlorine was present, I passed some of the gas through a solution of nitrate of silver, and although the gas passed through for more than five minutes there was not the least indication of chlorine. To verify this experiment, I took a drop of hydrochloric acid on a glass rod, and put it into the nitrate of silver solution, when there was instantly formed a thick precipitate of the chloride of silver. From this I concluded that no chlorine came over with the hydrogen. As the gas that escapes is hydrogen, where does it come from? It has been shown that the hydrogen that is liberated by the zinc decomposing the water, goes to the chlorine of the silver and forms hydrochloric acid. The chlorine of this compound has a strong affinity for zinc, and combines with it even in the presence of sulphuric acid, so that in the chemical changes that are going on, both the sulphate and chloride of zinc are formed, and as they are both soluble they are retained in water. By the decomposition of the hydrochloric acid by the zinc, an additional quantity of hydrogen is set free, and from the two sources more hydrogen is generated than the chlorine of the silver requires to convert it into hydrochloric acid. The excess escapes in the form of gas.

If I am wrong in the above statements I hope the Doctor will correct me.—*Dental Times.*

ARTICLE XI.

The Course of Epithelioma.

Dr. Reid, in the *Glasgow Medical Journal,* writes as follows:

In accordance with this view, the development and course of the disease would be somewhat in the following order:—

1. An increase of epithelial cells, with more or less irritation and hyperæmia of the neighboring parts. The

increase of epithelial cells, and consequently hypertrophy of the glands in this variety—the sub-cutaneous—takes place at the expense of the connective tissues, which are partly displaced and condensed, and partly incorporated with the gland tissue.

2. A proliferation and degeneration of the nuclei increasing the volume, and at the same time obscuring the original glandular type. The cuticle yields to the pressure exerted by the softened and partially disintegrated mass which is discharged in the form of brownish crusts. The ulcerated surface may either imperfectly cicatrize or remain as an open sore covered with a loose scab. The part discharged is soon replaced by others. In this way there is a succession of discharges at a shorter or longer interval, the ultimate result being an extension of the ulcer. Whilst this process is going on in the centre, new elements are added to the circumference, and the area of the disease extends with that of the ulcer. At this early stage the aggregation of hypertrophied glands resembles a small well defined tumor, which in the later stages is represented by the cancroid deposit at the margin of the ulcerated surface. The imperfect cicatrization of the early stages and the permanently ulcerated surface in the later stage, covered with a brownish crust, appear to be due to the infiltration of the connective tissues with epithelial and other elements.

MONTHLY SUMMARY.

Carbuncles.—As carbuncles often follow each other in the same patient, anything that promises to arrest them would be gladly tried by the sufferers. Dr. Marcet suggests in the "*Lancet*" a ready method, provided it be employed as soon as the small vesicle appears on the skin.

He says:—"If the carbuncle be allowed to proceed, say, for twelve hours beyond its very first appearance, it will run its usual course; but its progress may be arrested by the early destruction of the vesicle and its contents by means of the cauterizing action of heat. I have adopted many plans to effect this purpose; but the simplest of all, and one which may be considered as always at hand, is the use of an incandescent lucifer-match. The vesicle is to be merely touched, for a fraction of a second, with the red-hot point from five to seven or eight times in succession, when it assumes a dull-whitish appearance from the coagulation of the album it contains. The end of the hot wire may also be used. The pain of the operation is really trifling, and it will soon save from a week to a fortnights suffering. I have repeatedly applied this form of actual cautery to myself, and shall not hesitate to do so again if necessary.

"In general, within four or five hours after the operation, the pain from the incipient carbuncle has in a great measure disappeared, and there is an end to it. It may happen, however, that the carbuncle at its origin, is deep under the surface of the skin, when no vesicle appears. I have not been so successful with the use of the actual cautery in these cases as in the others; but probably, had the cauterization been carried deeper, the mischief might have been arrested."

Dr. Marcet has tried nitric acid, and nitrate of silver, but found them unreliable. He thinks the early vesicle may contain a virus, by destroying which the disease is nipped in the bud. This simple mode is likely to be tried further,

Dr. J. C. Nott, in the *New York Medical Journal* for January, records a case which he says is "the only real abortion of a carbuncle he ever saw." It was three inches in diameter, and involved the tissues very deeply. He made a deep incision of one and a quarter inches, and stuffed it with cotton saturated with pure carbolic acid, and also painted the whole hardened surface with the remedy. Dr. Nott says:—The patient complained of a sharp burning sensation for a few minutes, when the pain subsided completely. The cuticle, by the next day, came off, and the surface looked like a burn. After the first few minutes he was free from pain, and never complained of any afterward. I continued every day for a week to insert the acid, in the same way, into the cut, which sloughed all around to the depth of one-eight of an inch; the surrounding inflammation and induration subsided rapidly, and in a week there was nothing left to treat, but the small open wound made by the knife and acid. Three other small carbuncles commenced, an inch or two from the large one; they were all treated by incision and the acid, and they all aborted."—*The Doctor.*

Concealed Vascular Tumor of the Face.—Dr M. Townsend reported at a clinic of Prof. Gross, Jefferson Medical College, as published in the *Medical Times*, the case of a patient, aged 54 who had had a tumor on his face for upwards of a year, supposed to be sebaceous, having the feel and external characteristics of a growth of this kind. On cutting into it, however, it proved to be a vascular tumor, and some little time was occupied in controlling the resulting hæmorrhage. Needles, armed with strong ligatures, were passed crucially under the mesh of arteries and veins, and the growth was then, subcutaneously as it were, thoroughly ligated.

Such affections as these are generally congenital. These tumors exhibit considerable variety of structure, being sometimes essentially composed of veins, sometimes nearly equally of arteries and veins. When the tumor is arterial, it generally pulsates synchronously with the left ventricle of the heart.

Condurango.—Some of our exchanges (*Nat. Med. Jour.*; *Medical Gazette, Boston Medical and Surgical Journal*) refer to a recent correspondence between the Minister of the United States to the Republic of Ecquador and the government at Washington in regard to the introduction into this country for medicinal purposes of the wood of a tree called Condurango. It is said that fifty pounds of the wood have been placed at the disposal of the Surgeon-General of the navy for experiment by naval surgeons and other medical men, and it is the expressed wish of the Secretary of State that Mr. Robeson should cause it to be administered by the medical staff of the navy. The diseases in which the drug has been found to act most happily by the physicians of Ecquador are syphilis and cancer,—two diseases not generally thought to be closely allied. One of our cotemporaries says:

"Unfortunately, the accounts of cures affected by this drug have been derived in great part from ignorant people, and the word cancer is so loosely used that it is impossible to believe in all the cases in which the patient was so fortunately restored t health under its use, that he was affected with malignant disease."—*Med. Times.*

EDITORIAL DEPARTMENT.

The American Dental Association.—Dr. Cushing sends us the following information, which has been received from the various members of the committee to secure reduced rates of travel for delegates to the American Dental Association.

New Orleans: All roads from that city will carry at half fare.

Louisville: Half fare.

Cincinnati: Half fare.

St. Louis: Not heard from.

Chicago: No arrangement has been yet completed; if any is made, due notice will be published in the daily and weekly press.

New York: Fare for round trip, $21.60. Tickets to be had at 111 Liberty Street, New York City.

Boston: All delegates from Boston or New England, will have to go *via* New York. Tickets for round trip from Boston can be obtained at 82 Washington Street, Boston, at $31.60. or through tickets from New York as above.

San Francisco: Half fare has been secured over the road from Omaha to Chicago, and it is expected that the same will be secured over the entire road.

Members who cannot avail themselves of half-fare tickets from any of the above central points, or who can only get reduced rates to Baltimore or Washington, will find tickets from Washington to White Sulphur Springs and return, at 603 Pennsylvania Avenue.

Washington: Fare for round trip, $12.50.

The promptness and liberality with which the agents of the Orange, Alexandria and Mannasses, and the Ohio and Chesapeake Roads, responded to the request of the committee, demands notice at our hands, as being in pleasing contrast to the action of some of the roads, who grant very reluctantly, if at all, the desired concession.

Southern Dental Association.—The following is a list of the Officers and Committees of the Southern Dental Association, until the next Annual Meeting of that body, to be held in the city of Richmond, Va., the last Tuesday in July 1872, commencing at 10 o'clock A. M.

It is sincerely hoped and expected, that the members of the following Committees will correspond one with another, so as to act in concert, and furnish a report on each subject, and thereby make our next meeting one of the most interesting and instructive ever held, as it is expected to be the largest.

OFFICERS.

President, Dr. F. Y. Clark, Georgia; 1*st Vice President*, Dr. J. B. Patrick, S. C.; 2*nd Vice President*, Dr. H. M. Grant, Va.; 3*d Vice President*, Dr. E. Floyd, N. C.; *Corresponding Sec'y*, Dr. A. C. Ford, Georgia; *Recording Sec'y*, Dr. O. J. Bond, S. C.; *Treasurer*, Dr. W. G. Redman, Ky.

Executive Committee, Drs. H. M. Grant, Va.; Jas. F. Thompson, Va.; L. G. Holland, Georgia; E. A. Herman, Tenn., and T. T. Moore, South Carolina.

Committee on Membership, Drs. James F. Thompson, Va.; J. B. Patrick, S. C.; and H. C. Jones, Virginia.

Committee on Publication, Drs. Samuel A. White, E. M. Allen, Georgia, and F. J. S. Gorgas, Md.

Committee on Dental Education, Drs. J. P. H. Brown, Georgia; Geo. H. Winkler, S. C., and John G. Angell, Louisiana.

Committee on Physiology and Surgery, Drs. W. T. Arrington, Tenn.; W. H. Atkinson, N. Y., and James S. Knapp, Louisiana.

Committee on Histology and Microscopy, Drs. S. P. Cutler, Louisiana: G. T. Barker, Penn., and William Reynolds, South Carolina.

Committee on Dental Chemistry, Drs. B. F. Arrington. N. C.; W. H. Morgan, Tenn., and J. G. McAuley, Alabama.

Committee on Dental Therapeutics, Drs. N. W. Kingsley, N. Y.; W. H. Burr, Georgia, and Samuel Rambo, Alabama.

Committee on Operative Dentistry, Drs. E. A. Herman, Tenn.; A. C. Ford, Georgia, and W. H. Shadoan, Kentucky.

Committee on Mechanical Dentistry, Drs. B. A, Rodrigues, S. C.; J. H. Royal, Georgia, and G. F. Wright, South Carolina.

Committee on Dental Literature, Drs. F. J. S. Gorgas, Md.; W. C. Wardlaw, S. C., and E. Floyd, North Carolina.

Committee on Voluntary Essays, Drs. H. A. Lowrance, Ga.; Samuel A. White, Georgia, and S. J. Cobb. Tennessee.

BIBLIOGRAPHICAL.

Harris' Principles and Practice of Dentistry. Tenth Revised Editon. By P. H. Austen, M. D., D. D. S., F. J. S. Gorgas, M. D., D. D. S., and T. S. Latimer, M. D., of the Faculty of the Baltimore College of Dental Surgery.

The great advances in Dental Physiology, Pathology, Surgery and Mechanism made it imperative that this first and oldest of Dental Text-Books should be in great part re-written, and rearranged, in order to bring it fully up to the present status of science, and preserve the reputation it has so long sustained throughout the civilized world. This has been done, and an edition of the work is now presented which we feel confident will be well received by the profession.

Many new and important illustrations have been added to the work, the contents of which are classified as follows: Part I. Dental Anatomy and Physiology. Part II. Dental Pathology and Therapeutics. Part III. Dental Surgery. Part IV. Dental Mechanics; with a chapter on Palatine Defects, prepared expressly for this edition by Norman W. Kingsley, D. D. S.

The enterprising publishers, Messrs. Lindsay & Blakiston of Philadelphia, have issued this new edition in a style creditable to themselves, it being printed on fine paper with large clear type, rendering it in every respect convenient for the dental student. The number of illustrations this new edition contains is four hundred and nine, an increase of nearly one hundred over the ninth edition of the work.

Insanity in Women. By Prof. H. R. Storer, M. D., Boston. The author of this interesting treatise ascribes a large proportion of the cases of insanity in women, being of a reflex nature, to diseases of the pelvic organs, and indicates the rational mode of treatment. He asserts that "the relative mortality of insane women is less than of insane men."

Diseases of the Womb. Uterine Catarrh frequently the cause of Sterility. New Treatment. By H. E. Gantillon, M.D. James Campbell, Publisher, Boston. This work is divided into: I. Anatomical and Physiological reflections on the Uterine Cavities. II. Causes of Uterine Catarrh. III. Symptoms of Uterine Catarrh. IV. Diagnosis of Uterine Catarrh. V. Prognosis. VI. Treatment. VII. Cases.

The Virginia Clinical Record.—A new monthly journal of medicine, surgery and the collateral sciences. Terms $1.00 per annum. W. W. Hazlewood, publisher, Richmond, Va.

The Medical Cosmos.—A new monthly abstract of medical science and art. By George J. Ziegler, M. D. Terms $1.00 per annum, 113 South 16th Street, Philadelphia, Pa.

American Journal of Microscopy.—Devoted to the elucidation of scientific and popular microscopy. By E. M. Hale, M.D. Editor. Published by G. Mead & Co., 182 S. Clark St., Chicago.

The Medical World.—A new monthly journal of American and Foreign medical, physiological, surgical, and chemical literature, criticism, and news. Edited by Reuben A. Vance, M.D. Wm. Baldwin & Co., Publishers, 21 Park Row, New York.

OBITUARY NOTICE.

Dr. R. G. Snow, well known to the dental profession throughout the country, from his connection with the "Snow & Lewis Automatic Plugger, etc. etc.," died in Buffalo, N. Y., in May last of typhoid fever.

Dr. Snow was born in Madison County, New York, December 28th, 1805, and was, consequently, in his 66th year . His parremoved to Chautauqua County during his early years, whence he came in the spring of 1827 to Buffalo, and spent some time in teaching. He afterwards entered the office of Drs. Chapin and Burwell as a medical student, and finished the prescribed course of instruction by receiving the degree of M.D. from the Fairfield Medical College, in the spring of 1833.

He commenced the practice of medicine in Sandusky city, Ohio, where he remained two years. Subsequently he returned to Buffalo, and practiced his profession in partnership with Dr. Bryant Burnwell. In 1839 he turned his attention to dentistry, as his health would no longer permit him to undergo the fatigue and exposure consequent upon following the general practice of medicine. In this branch of the healing art he received instructions from Dr. Uriah Dunning, who was then a prominent dentist in this city, and with whom he eventually formed a partnership. Dr. Dunning soon after left the city, and Dr. Snow then resumed the practice connected with the office, which was continued throughout a period of nearly thirty years, without any lengthened interruption.

Dr. Snow was a man of conceded ability in his profession, and took a very active interest in its progress and welfare. He was one of the first dentists in the part of the State where he resided, and stood foremost in all movements looking towards the improvement of dentistry.

He was once President of the Western New York Dental Association, and under the present State Law was also appointed as Censor from the Eighth District Dental Society, which position he occupied at the time of his death, and was not inferior in general intelligence and attainments to any member of the Board.

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ARTICLE I.

Proceedings of Southern Dental Association.

The third annual meeting of this body was held in Charleston, S. C., April 12, 13, 14, and 15, 1871. The President, Prof. James S. Knapp, of New Orleans, in the chair. Session opened with prayer by Rev. Dr. Winkler. Welcome address by Dr. G. H. Winkler, and responded to by the President.

Members present: Drs. F. Y. Clark, E. A. Herman, John G. Angell, H. A. Lowrance, A. C. Ford, S. G. Holland, W. H. Burr, C. D. Alvigny, Wm. Reynolds, J. T. Campbell, E. Floyd, J. B. Patrick, and S. J. Cobb.

The following named persons were elected active members:

Drs. C. C. Patrick, G. H. Winkler, T. T. Moore, M. S. Kliuck, Wm. C. Wardlaw, B. A. Rodrigues, J. R Solomons, W. S. Brown, M. S. Hanckell, Henry C. Jones, H. M. Grant, J. F. Thompsen, A. M. Postley, T. F. Chupein, H. J. Royal, J. S. Jobson, Samuel A. White, B. C. Hart, C. B. Hutto, W. L. Reynolds, B. A. Muckenfuss, D. L. Boozer, G. F. S. Wright, T. W. Bouchier, O. J. Bond, A. B. Brookins, N. W. Kingsley, and W. R. Bull.

The following delegates were received, and also elected active members:

American Dental Association: Prof. W. H. Atkinson, New York.

Pennsylvania Dental College: Prof. Geo. T. Barker, Philadelphia.

WEDNESDAY AFTERNOON.

Prof. S. P. Cutler, Chairman of Committee on Histology and Microscopy, reported a paper on Microscopy of the teeth, which was read by Prof. Angell. By request Prof. Atkinson made some remarks on the same subject. He regretted the absence of Prof. Cutler, as he was thus deprived of the privilege of discussing some points in the report.

Dr. F. Y. Clark, Chairman of Committee on Dental Therapeutics, read a very interesting report, which was received and discussed.

Dr. E. Floyd, of N. C., said that he could not agree with Dr. Clark in regard to negroes having better teeth than the whites; he had never seen a negro twenty-five years old with a set of sound teeth; had seen white men forty and fifty years of age, with sound teeth.

Dr. Hanckell found a vast difference in the teeth of the negroes of the upper and lower country of South Carolina; those on the coast had the best teeth, the cause he supposed to be, that they do not separate the bran from the fine meal, as those of the upper country do.

Dr. Winkler said, that, in central Africa, where the negroes are large, healthy, and well developed, and live principally on the fruits of the chase, they have good teeth; he attributed it to their mode of living.

Prof. Barker regretted that he did not hear all the paper, as the portion that he did hear contained ideas similar to his own. He thought that we frequently arrived at erroneous conclusions by authorizing too much importance to food. It is necessary, not only that the food be good and nourishing, but that the organs have the power of making the proper appropriation. He mentioned two cases, which had lately come under his own observation; the one, a man eight feet one inch in height, had hard and well developed teeth, wearing like marble; the other a woman eight feet high, had small soft *leathery* teeth, without any hard osseous substance, but had a predominance of organic material. It was a subject that had enlisted his attention for several years, and he thought it well to advise the use of good nutritious food, and the observation of proper rules of health. He had never seen a set of perfect teeth. The nearest approach to perfection he had ever seen was in the mouth of a two-headed girl, with one body and four legs, who ate very little, but the appropriating organs were in good order.

Dr. J. B. Patrick said, the more strictly man lives in accordance with the laws of nature, the better his teeth will be. The tribe referred to by Dr. Winkler, have good teeth because they live on simple and nourishing diet; but when they come to this country, they degenerate.

WEDNESDAY EVENING.

Communications were read from Drs. Rambo, Morgan, McLain, and Redman, expressing regrets at not being able to to attend.

A communication was received from the South Carolina State Dental Association, inviting the members of the Southern Dental Association, to accompany them on an excursion up the Ashley River to the Phosphate works, and around Charleston Harbor.

The invitation was accepted.

The Discussion of Dr. Clark's paper was resumed.

Dr. Grant remarked that he had given the subject some thought, but not as much as it deserved. He thought that caries of the teeth could be inherited from either parent, and could be brought about by various causes, such as climate, clothing, and associations of the mind. That portion of the wheat which enters into the formation of bone, is, to a great extent. removed from flour as now manufactured. The poor, who subsist, principally, on corn bread and use but little flour, have better health and teeth than those whose principal diet consists of fine flour. The old slave who lived on coarse, cold diet, had better teeth than his master, and better than the house-servant who was fed from his master's table. He mentioned a negro girl, whose parents had good teeth, who had no inferior teeth: she had the superior teeth, but the processes seemed to be wasting away.

Dr. Cobb endorsed Dr. Clark's paper in many points. He believed that "like begets like," and that members of the same family could be identified by their dental organs, if the subject was thoroughly understood. He believed that disease was transmitted in consequence of the violation of some law of nature.

Dr. Ford thought that the case mentioned by Dr. Grant an abnormal one.

Dr. Moore wished to know how man had changed the shape of his dental organs.

Prof. Barker believed that we had modified *all* our organs by our degenerate manner of living, and thought that the two cases referred to by himself, illustrated that fact.

Dr. Reynolds did not think that the case without inferior teeth referred to by Dr. Grant, was hereditary. In regard to flour, he thought that much harm was done by giving too much of the bone producing substance, from an excessive use of which there is danger of an ossific deposit in the heart and arteries.

Prof. Atkinson. A full discussion of Dental Therapeutics can scarcely occupy much space, but if Dental Hygiene be allowable then the remarks already made have a decided and legitimate bearing. Intimate knowledge of the histology of the teeth is indispensable to enable us to understand the cause of imperfectly developed dental organs. There is but a single door of entrance to dental disease, properly so called, and that is *debility* of the formative elements denominated *cells*, which elaborate the enamel and dentine.

Imperfection of enamel and dentine may result from defficiency of the material out of which they are elaborated; but this is not properly called disease, for subsequently portions of both these tissues are well and fully formed as soon as the supply is brought in reach of the little builders of the dentinal and enamel tissue, the cells.

Deficiency of food, sunlight, and exercise are chargeable with all the imperfections in teeth that demand therapeutical knowledge and skill.

It is fortunate for the people, and for the profession of dentistry, that these tissues of the crowns of the teeth are so very lowly endowed with vital energy.

Were it otherwise, our efforts to remove debilitated and decayed portions, and to supply the place with a substitute, instead of arresting the process of decay, would only aggravate that condition, and render the salivation of the teeth an impossibility.

Dental therapeutics, then, consists in removing all sick dental tissue, be it enamel or dentine, and promptly supplying an indestructible substitute.

Dental hygiene consists in scrupulous cleanliness and abundant exercise of the organs of mastication.

Dr. Winkler thought that it was of great importance to the temporary teeth, in order to prevent contraction of the arch, and give ample room for the eruption of the permanent set.

Dr. Chupein regarded filling the deciduous teeth the best method of preserving them. He had evidence of this in the case of his own child. He filled the oral teeth when she was three years old; she is now eight, and the oral teeth are good, while the buccal are all gone.

Dr. Ford contended that cleaning teeth was not all that was necessary, that filling was essential. He filled a left lower molar of his child at two years of age; she is now eleven, and the tooth is still good.

Dr. Herman always treated children's teeth as simply as possible. If there is an abscess, and the tooth low, in a child of six or eight years of age, he would extract; in one of three or four, he would treat or extract, being governed by circumstances. He fills deciduous teeth with gold, and, if kept clean, they will last indefinitely.

Dr. Reynolds deprecated filling with amalgam.

Prof. Atkinson cleanses the cavity thoroughly and fills first with os. art., afterwards removing a portion of the oxychloride of zinc, and filling with amalgam. Treats abscess in children's mouths the same as in adults.

Dr. Cobb would fill with os-artificiel, amalgam, etc., as would best suit the case.

Dr. Clark cleanses the cavity as perfectly as possible and uses amalgam; in sensitive cases uses os-artificiel.

Dr. J. B. Patrick said that he was very cautious in treating alveolar abscess in children's mouths, (in order to preserve the teeth, thus preventing contraction of the arch), as it might be productive of serious injury. He mentioned a case in which had occurred, from the treatment of alveolar abscess, exfoliation of a portion of the maxilla, containing several teeth.

As the excursion would consume the whole of the following morning and afternoon, the Association adjourned till 8 P. M.

THURSDAY EVENING.

The morning and afternoon having been consumed in the excursion, the Association assembled at 8 P. M., and was called to order by the President.

The Committee on Membership recommended Dr. S. H. Cartwright, M.R.C.S., of London, Eng., as an Honorary and Corresponding member of this Association, and on ballot he was elected.

The discussion of Dr. Clark's paper was resumed.

Prof. Atkinson. Almost any table in a civilized land affords a sufficient supply of the proper material to ensure a well developed denture. But the habits of nearly all civilized people are such as to prevent the full play of the formative functions of teeth and bones. The principal mistake is the over preparation of food by comminution and bad cooking. Indisposition to vigorous exercise, if indulged, will result in an inability to appropriate the earthy elements. This inability to appropriate the lime salts lays at the bottom of imperfectly developed enamel and dentine, to a much greater extent than the absence of these salts in our flour and other kinds of food.

There is but little really known in the direction of a clear apprehension and understanding of the histology and therapia of the tissues and organs of the human body. To get at a just conception of the part that hereditary influences play in health and disease, we must get rid of nearly all the doctrines of hereditary descent. Heretofore, they have been thought to be the product, in constitution of body and mind, of our immediate parents, that is, our father and mother. All this is fallacy. We are the product of many lines of descent, of many different races and bloods. Hence our teeth or other organs may partake of any of the various types of an illimitable ancestry.

No observing physician but has seen this exemplified extensively in every neighborhood. To such a degree does this hold good, that jealousies have arisen many times because of the close resemblance of features, of the teeth, and other organs, to uncle, cousin, or neighbor; when if the family history had been consulted, the origin of diversity and resemblance would have been vindicated in a legitimate way.

The longevity of tissues must be more closely studied before we are able to meet all indications in the therapia and hygiene of the teeth.

Dr. Cartwright thought that there were constitutional causes of decay, such as in *enciente* females. He said that it was generally conceded that decay could not take place in the dentine unless the enamel was affected; and that the free and proper use of the brush had done much towards preventing decay.

Dr. Winkler attributed decay to the action of acids. Food, permitted to remain around the teeth, ferments, softens the enamel, and offers a lodgement for vegetable fungi, and animal infusora, which are found in large quantities in favorable mouths. The color of the decay depends upon the rapidity of its progress.

The time having arrived for the selection of the next time and place of meeting, the last Tuesday in July, 1872, and Richmond Va., were unanimously chosen.

FRIDAY MORNING.

Dr. Kingsley, who had consented to demonstrate his method of supplying artificial palates, not being able to attend at the appointed time. Dr. Cartwright was requested to demonstrate the Anatomy and Physiology of the parts concerned, and the surgical operation resorted to for the purpose of relieving such inconvenience. Dr. C. though unexpectedly called upon, manifested, by his very clear illustrations, a perfect familiarity with the subject.

Dr. Kingsley having arrived, was called upon. He gave a minute, and very interesting description of his method of supplying artificial palates. The appliance consists of two pieces, made of hard and soft rubber; the latter was struck up with sectional dies made of type metal, and vulcanized; for one hour, at a temperature varying from 240° to 250°; one hour from 250° to 260°; and two hours from 260° to 270°.

Prof. Barker thought the appliance was more satisfactory when made in one piece, and all of hard rubber.

Dr. Cartwright said he had seen ten or twelve persons who were wearing artificial palates made by Dr. Kingsley, and they were suffering no inconvenience, except from the fact of the palates being a foreign body. Some of the parties could not be understood when talking without the artificial palates, but articulated distinctly with them.

Prof. Atkinson did not consider cases of cleft palate sufficiently numerous to induce every dentist to become an adept in the art of supplying the deficiency. He was glad to know where to send patients suffering from this deformity, as he did not like to undertake such cases.

Dr. J. B. Patrick said he had quite a number of cases of cleft palate from gun-shot wounds, and had always succeeded in restoring speech. He mentioned the case of a wounded officer, the shot passing from the anterior surface of the soft palate and uvula. A plate of gold was introduced, and he could speak distinctly, and smoke with comfort.

Dr. Clark cheerfully gave Dr. Kingsley the credit for his improvements in artificial palates, particularly those of soft rubber.

On motion of Dr. Winkler, a vote of thanks was tendered Dr. Kingsley for his cheerful compliance with the wishes of the Association in demonstrating his improvements in artificial palates.

On motion, the discussion of Dr. Clark's report was closed, and the regular order of business was resumed.

The other Committees not being ready to report, on motion Prof. Barker read a paper "On the Replanting of Teeth." *

Dr. Clark, referring to Prof. B.'s paper, objected to the injection of morphine as he considered it dangerous, a death having occurred in Savannah, Ga., from that cause.

Prof. Atkinson has heard of teeth being imported from Europe in brandy, and transplanted successfully. He considered the periosteum as simply a cementing tissue. Believed that the pulps may sometimes be united as demonstrated by Hunter, of England.

Dr. Moore had some experience in replanting teeth. Cited a case of an incisor tooth, which he could not cure; extracted it, clipped off the end, which was necrosed; filled the canal with gold and reinserted. There was no after trouble.

Dr. Moore mentioned the case of a molar tooth he had extracted, filled and reinserted with success. He knew that it was a common practice to extract and reinsert teeth which proved useful for years. Would like to know what length of time a tooth might remain out and be reinserted with success.

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* Not left with the Rec. Secretary, but published in present No. of Journal.

Dr. Reynolds mentioned a case in which the Dens Sap ientia had been removed, by mistake, and reinserted. Six years afterward, the lady consulted him in regard to paralysis of the eyelid, on the same side of the face as the replaced tooth. He examined the tooth but found nothing peculiar about it. The lady still suffered so much from her eye, that he extracted the tooth, and the eyelid recovered its integrity.

On motion of Dr. Cobb, the discussion was closed.

Dr. Herman read a paper on "The Importance of Elevating the Standard of the Dental Profession."

FRIDAY AFTERNOON.

On motion of Dr. Angell, a committee of three, consisting of Drs. Royal, Burr, and Lowrance, was appointed to draft suitable resolutions in regard to the death of Drs. Crow and Johnson. *

The subject of Dental Education was introduced.

Dr. Cobb thinks it is the most important of all subjects, and hopes every member will give it due consideration, as all of our notions and actions are based upon education.

We ought to keep up our Colleges, make them a success, and, in addition, endeavor to interest the people generally, in the profession. Our Dental Associations will do much towards elevating the profession by educating ourselves, as well as the public. He advocates a People's Dental Journal for circulation among the masses.

Dr. Winkler thought that our first object should be self-instruction, and then, that of the public. Dental Colleges are a great blessing; their principles are good, and they excite and stimulate the student to great effort. Dental Associations are also prolific of much good, but much of their success depends upon having active and energetic, working men on our committees.

Dr. Kingsley is radical on the subject. Many enter the profession who should be discouraged, as they are not suited to it, and would do better at something else.

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* Published in present No. of Journal.

The discussion was then closed.

The subject of Operative Dental Surgery was discussed.

Prof. Atkinson referred to a difficult operation he had performed during clinics, in which he had used platina foil for filling the cavity. That metal suited this particular case better than gold, as it required less force to condense it, and adapted itself more readily to the walls of the cavity.

Dr. Clark, 1st Vice-President, being called to the chair, Prof. Knapp, by request, gave a very clear description of his method of manipulating with cylinders.

Dr. Herman formerly preferred cylinders for filling crown cavities, but now generally uses strips; can operate better with gold in this form when filling approximal cavities. He prefers gold to any other material, but sometimes uses amalgam. He never aims to make a display of his fillings, his only object is to save the tooth.

Dr. Clark manipulates gold in a variety of forms; adopts that one which he thinks best suited to each particular case.

FRIDAY EVENING.

The subject of Operative Dental Surgery was resumed.

Dr. Moore said that when a tooth was badly decayed, he did not hesitate to remove any frail portions of the enamel, as he considered the solid gold filling more desirable than frail enamel, though it might not look so well.

Prof. Angell.—Three things ought to be taken into consideration in filling a tooth, viz: usefulness, durability, and appearance; and that the last should be subservient to the other two. He always endeavored, when his judgement sanctioned it, to leave a tooth as near as possible to nature in shape, though he would not unnecessarily sacrifice any dentine or enamel, and preferred as little as possible of his fillings to be visible.

Dr. Reynolds mentioned the case of a lady, thirty-five years of age, who called upon him to operate upon a tumor situated in the anterior portion of the superior maxilla. All her teeth had apparently been extracted, as she stated, eight years previous, and was wearing a rubber plate. On examining the case, he found that the trouble proceeded from a cuspid tooth, embedded horizontally in the alveolar ridge. He removed the tooth and the *tumor* disappeared.

The Committee appointed to draft suitable Resolutions in reference to the death of Drs. T. J. Crow, and Warren [illegible], offered the following. (See Obituary Notices.)

An election for officers resulted as follows:

President.—Dr. F. Y. Clark, Savannah, Ga.

First Vice-President.—Dr. J. B. Patrick, Charleston, S.C.

Second Vice-President.—Dr. H. M. Grant, Abingdon, Va.

Third Vice-President.—Dr. E. Floyd, Fayetteville, N.C.

Corresponding Secretary.—Dr. A. C. Ford, Atlanta, Ga.

Recording Secretary.—Dr. O. J. Bond, Marion, S. C.

Treasurer.—Dr. W. G. Redman, Louisville, Ky.

The officers for the ensuing year were then duly installed.

On motion of Prof. Angell, Dr. S. Hape, of Atlanta, Ga., was elected an Honorary Member.

Prof. Angell being called upon for information in regard to establishing a Dental Journal, submitted a verbal report which was accepted.

New Orleans, La., was chosen as the place for the publication of the Journal, and Prof. S. P. Cutler, of New Orleans, La., elected editor.

The following named members were elected delegates to the American Dental Association:

G. H. Winkler, A. M. Postley, H. J. Royal, J. B. Patrick, H. A. Lowrance, W. H. Burr, Henry C. Jones, Jas. T. Thompson, H. M. Grant, W. R. Bull, W. S. Brown, Wm. C. Wardlaw, M. S. Hanckell, C. C. Patrick, D. L. Rosser, T. F. Chuypein, B. A. Rodrigues, J. P. H. Brown, G. F. S. Wright, B. A. Muckenfuss, and M. S. Jobson.

SATURDAY MORNING.

A committee of three, consisting of Profs. Cutler, Knapp, and Angell, was appointed, with full power to take such steps as they may think proper, in carrying out the views of this Association in publishing a Dental Journal.

The following Committees were appointed for the ensuing year. (See August No. of Journal.)

Adjourned to meet in the city of Richmond, Va., the last Tuesday in July, 1872, at 10 o'clock, A. M.

O. J. Bond, Rec. Sect'y.

ARTICLE II.

The Present Development and Tendencies of the Dental Profession.

By Dr. E. Blake.

Extract of an address read before the Massachusetts Dental Society.

* * * * * It cannot have escaped the discernment of many among us, that our profession is in a transition state between an old and a new era. No one may be able to fix the date which marks the dividing line, but all are cognizant of the fact that the organization of dental societies —the institution of dental colleges—and the advent of dental literature—have wrought a change in our whole manner of thinking and feeling in relation to our calling. This change arises not merely from the fact that these institutions have enlarged the boundaries of our knowledge, or disseminated more widely and quickly all improvement in our methods of practice. It lies deeper, and results from causes more profound. It is because these have changed us from isolated individuals, working chiefly for personal ends, to a great fraternity of co-laborers, having common aims, interests, and working for the honor of our profession and the well-being of our race. These also open the way to the talented and ambitious, to prizes of title and honor, to wider usefulness and increased emoluments; thus stimulating exertion and securing progress. And through these we all become "Members one of another." Somewhat of the halo of glory that crowns the brow of the chiefest among us, becomes the valued heritage of the humblest in our ranks. Whatever fortune lifts one of our number to eminence, we all rejoice in his triumphs, and feel that he is still bound to

us by the subtle ties of a similar discipline in like studies, labors and difficulties.

Before proceeding with our subject, let us for one moment consider the *nature* of this Profession of Dentistry, which we so prize and love, for which all these institutions exist, and in which are garnered all our hopes and aspirations for usefulness and success in life.

It has been common to speak of dentistry as a specialty of medicine. And not a few dentists have seemed to think that by hanging upon the outskirts of that profession they were obtaining a position of honor. But the dentist who is content with this definition and position of his profession, has a very inadequate ideal of the true dimesions, scope and dignity of his calling. The treatment of any particular organ constitutes a specialist in medicine. The aurist and oculist are specialists. And thus the treatment of the teeth and their incident diseases would constitute a specialist in medicine. But is this the whole of dentistry? Are there no other large departments of our profession in which Art is the presiding genius? and others again purely mechanical? It does not follow, because the occulist and surgeon are specialists in medicine, that, therefore, the manufacturers o artificial eyes and limbs are so too. In the mechanical department, the dentist is a moulder in sand, a worker i metal, in gypsum, and in porcelain. The manufacture o artificial dentures has nothing more in common with th theory or practice of medicine than has sculpture or painting. A knowledge of artistic and mechanical elements no needed by physicians or taught in their schools is her required. The artist must well understand the externa expressions of anatomy, though he need not know its intimate structure. A like necessity rests upon the dentist i his artistic operations to restore the organs and forms o nature. But while this necessary obedience to the laws o art allies him to the artist, he must also understand th influence of his operations upon living tissues. And thi knowledge, together with that involved in surgical operation still more nearly affecting vital functions, allies him to the physician. Thus these different elements are combined and blended in him As a mechanic he manipulates his materials, as an artist he decides their forms and colors, as a specialist in medicine he fixes the nature and time and limits of all operations, as a dentist he does all. The mechanical and artistic elements are not less integral parts of dentistry, than are the surgical operations within the oral cavity. Yet we cannot conceive of them as within the province of medicine or medical study.

It would seem then that dentistry, including in that term all that is universally understood by it, cannot properly be claimed, indeed, that the bonndaries of dentistry are larger than those of medicine, because all medical knowledge may be useful, and a certain amount is indispensable to constitute a dentist a safe and efficient practitioner, while a physician may be ignorant of large departments of dentistry without impairing his professional position or usefulness. But still, in practice, considering that the sphere of our operations is more limited and that they are less vital to the health and lives of our patients, while that of the physician not only has a greater range and volume, but involves a mass of detail in physiological function and pathological condition, and of every substance and influence potent to control them, we must concede that the preponderence of science and dignity rests with the medical profession. I would detract nothing, but give all due honor to them. For let us always remember that in all that domain of our profession which we share with them we have a common heritage in the rich legacy of science accumulated through centuries of patient labor and research. Their masters are our masters. Their systems and methods are our guidss and monitors. The great names that speak with authority to them are our high priests as well. Those presumptuous individuals sometimes found among us, who butt their brainless heads against the solid masonry of fixed medical knowledge, deserve neither patience or consideration. Some of this class—neophites in science—who know nothing yet as they ought to know—are ever obtruding their fantastic theories as veritable discoveries which are to revolutionize the whole art of dentistry and the whole science of medicine. Let not pigmies attempt the task of titans. Blind like Samson, yet without his strength, they cannot pull down the temple of science upon our heads. A full course of medical study would correct these follies. But though desirable, it is not indispensable to entrance into our profession. And certainly a medical education is by no mean equivalent to a dental education—*for dentists*. We all know that some who came to us from that profession are in no wise superior operators to others whose first essay in life was made in other callings. Above all, we must not allow our profession to become, in any degree, a mere appendage to that of medicine. In truth our family pedigree runs back to different roots. If medicine is our father, Art is our mother. If we are brothers to the physician, our relationship is very near to the painter, the sculptor and the jeweller. If our profession is less purely intellectual than Divinity or Law, less comprehensive and cumulative of detail than Medicine, less æsthetic than Art, and taxes physical endurance less than mechanical labor, it yet makes larger demands upon the facilities necessary to each, and developes the whole man in a more harmonious manner than either of them.

Cherishing then these large and catholic views of the nobleness of our profession, recognizing it as a new one born of the exigencies of modern life, but yet the inheritor of sciences and arts long cultivated, we may well exert our most earnest efforts for its improvement and elevation, and the proper recognition of its claims. Drawing its life from such rich sources, freighted with so many blessings to humanity, it can have no other future than one of constantly expanding usefulness. And since it is our lot to stand in the very focus of this transition period, moulding and influencing its destinies more than the men of the past had power, or those of the future will have opportunity to do, let us make sure that it becomas a distinct entity—*sui generis*—taking its own form—living its own life, grand and noble—apart from all others.

Dentistry has obtained a higher development and a wider diffusion within the United States than in any other country. This arises from two causes: First, the greater frailty and earlier loss of teeth among our people; and, Secondly, the more general diffusion of wealth and intelligence, which enables a much larger proportion of the people to call to their aid the services of the dentist. Finding itself thus conditioned, the profession, which embraces within its ranks many scientific and ingenious minds, has not been slow to push its conquests, and has wrought out for itself its present high position.

* * * * * Of the present tendencies of our profession it may be remarked that the grand central influence is one of progress and development in all directions; financially, intellectually, morally. Not only is the average dentist of to-day better remunerated than at any former time, but a more generous culture, a more thorough professional training, and a higher standard of character is exacted and maintained by the profession. Voluntary associations having these ends in view, are general throughout the country. Our colleges and literature sustain and help forward the good work, and the great body of the profession are brought into more intimate relations with each other and inspired with better sentiments than ever before.

Among the special tendencies of our time, voluntary associations for the promotion of professional objects stand pre-eminent. Dental societies were first to take the field as an educating power. They have generally acted in a liberal spirit, extending their arms to receive all worthy applicants, with or without diplomas—if only coming with sufficient evidence of professional standing, with a clean record, and in a fraternal spirit. And whatever reputation and position any one may possess, he loses nothing, but gains much, by such associations with his professional brethren. But those societies, to reach their highest usefulness, must act on broad, liberal and permanent principles. The ambitions of men, the selfishness of cliques, the narrowness of parties, should find no place in them. The elevation and improvement of the profession, and the protection of the public from quackery, are the true objects to be secured. And could any society be turned aside from these worthy objects to the advancement of low aims, the certain and deserved result would be, loss of public confidence, rivalries and jealousies among the members, and the final disintegration and ruin of the society. While it is doubtless true that these elements of danger and discord exist in some degree in all our societies, I am glad to believe that the sound portion, loyal to truth and duty, will generally assert its rightful supremacy. The low arts which too often find their place in trade, make the general public suspicious of all pretensions to strictly honest dealing. Though imposture may endure for a time, yet at last all gaseous baubles will surely collapse, and all imposing shams be turned inside out. Not only must the aims and acts of our dental societies be guided by high and honorable principles, but this fact must be patent to all the world. It must be seen and felt that we exist no less for the public safety than for our own advantage. The time will come—there is no reason it should not be so now—when all regular dentists within fixed geographical limits will be members of one society, as physicians now are. This right of being a member by reason of being a dentist may be subject to certain qualifications, as with them. But it must be placed wholly above the exigencies of the society government, or of rival cliques. Any other course is demoralizing to the members, and must finally prove disastrous to the reputation and success of the society. There can be no ostracism in the world of science, any more than in the world of letters. Social, class, or personal antipathies have no right to obtrude their hateful presence within these charmed circles. Each left free to show his quality and power, he stands or falls by his merits.

The very first condition of success is harmony, and the respectful concession of all its rights to all its members. Nothing so fatally destroys all hope of usefulness as discord. From the ancient Psalmist who exclaimed, "Behold how good and how pleasant it is for brethren to dwell together in unity," to the utterance of Him who spake as never man spake, "Blessed are the peacemakers, for they shall be called the children of God," the benedictions of God and man have ever been upon the lovers of their race and the promotors of peace. If ambition has sown our earth with dragon's teeth, when it has fired the bosom of some great military chieftain, evils as great, if not so malign, have been its fruit when exhibited in other fields. Ambition, said to be the last infirmity of noble minds, is often the first infirmity of minds ignoble, and its evil influence is felt in every organization where honors are to be seized, or position and influence are to be won. Even societies like our own, whose legitimate sphere is the cultivation of scientific knowledge for the purpose of alleviating human suffering, have not been exempt from its baleful power. In exercising so fell a spirit, each should do something to save our societies from distrust and approbium.

The tendency to follow specialties in dentistry is already well marked. In several of our large cities there are establishments exclusively for the extraction of teeth, and the separation of the mechanical and artistic, from the surgical departments has long been proceeding with accelerating force. Though the men and methods effecting these results thus far, may be condemned, it will be admitted that the division is itself neither unreasonable or undesirable, and where the population is sufficiently dense, is likely to be pefected in the future. The hand, used to the coarser labor of the laboratory, is not fit, the next minute, to touch the delicate cheek of beauty, or to perform the dexterous manipulations that new-crown a tooth with gold. Even where these branches are carried on in the same office, under the same supervision, both kinds of work are seldom performed by the same man. They naturally cleave asunder and gather into fitting hands. It is not necessary to decide which is of higher grade. It is enough that they are diverse and incongruous. In a great metropolis, why should not extracting constitute one speciality, the treatment of irregularities another, the manufacture of artificial dentures another, and filling teeth still another, which latter of course would employ the great body of the profession. What valid objection could be made to this, provided these specialties were followed by regular members of the profession, and did not, as now they sometimes do, fall into the hands of men, who, to say the least, are very loosely connected with it. All this is in process of development, whether we may view it with complacency or not. And let us hope it will subserve equally well the interests of the public and of the profession, since all division of study or labor, which does not dwarf the mind, concentrates power and promotes perfection.

Another tendency of the present time, one of the strongest as well as one of the best, is towards the conservation of the natural teeth as opposed to the substitution of artificial dentures. Artificial teeth at best are merely substitutes, only tolerated because they are our last resort. Only imperative necessity reconciles any one to the loss of any organ or part of the body. My living tooth like my arm is part of myself. When it is lost, a part of my own proper person is consigned to the grave. But an artificial denture is only so much pyroxiline, rubber, porcelain, gold and platinum—so much metal, gum and stone. Like filthy lucre, "'Twas his, 'tis mine, and may be a to slave thousands." Like a garment, if it fits and suits, one may wear it; if not, he throws it aside without compunction. It is true, it is a work of art to form from the plastic elements a denture, conforming to the general anatomy, harmonizing with the complexion and features, performing the offices of use also— articulation and mastication; all this and more—doing *its* part in giving expression to the character of the heart and soul—this were indeed a work of high art. But no art or science or skill ever did or ever can give back the pefection which nature —the grandest of artists, and the most loving of mothers—bestows upon all her children. No anathema is too severe for him who mars her work, and for gain, recklessly sacrifices the natural teeth—no praise too high for him who saves them. With what conscientious faithfulness then, ought we to labor for those who confide them to our care! Forty years ago, the insertion of artificial dentures constituted the chief part of dentistry. To-day its proportion is much less, showing the great relative progress of conservative dentistry.

Other professions have had centuries of development and growth. But as Minerva leaped from the brain of Jupiter in the full panoply of war, so Dentistry came forth from the brain of the nineteenth century, in full vigor and maturity, to meet the need of an advancing civilization. Eminent individual practitioners there have been, but no dental profession, known, and respected as such until our own day. Yet, young as it is, the charge sometimes made that it is the peculiar home of quackery, is unfounded. The sun has dark spots—barnacles cling to the best of ships—and it is said that Satan can put on the shining garb of an angel of light. Charlatans and pretenders abound everywhere—in law—in medicine; wolves in sheeps' clothing sometimes invade the sacred desk. Is it any wonder, then, that many camp-followers of fortune should seek our cultivated fields, promising as it would seem to them, such easy spoils? Like the frogs and lice of Egypt, they invade the hovel and palace alike—like its locusts, they eat up every *green thing.* Many people of wealth, and some of high mental culture and social position, run after the most arrant impostors in dentistry and medicine. It is one of the profoundest and saddest mysteries of human nature that it will go far and seek long for folly, when wisdom is right within its grasp. Yet, spite of this general lack of discrimination and appreciation in the public, by the healthy vitality developed within itself, effete and gangreneous methods and members are sloughed off—learning, skill and judgement are recognized, and rapid progres is made by the profession.

Our profession has by no means yet reached its maximum ratio to the population. There are still great masses o people whose mouths are full of pain and rottenness an ruin, with offensive breath, and who are utterly incapabl of masticating their food. Under these conditions digestio is never properly begun, and dyspepsia is an ever-presen demon. The field is large. Let us not consider our profession too full till all this multitude is reached and purified The highest art should always take precedence where it ca be remunerated; but where it cannot, do not shut men ou from health and blessing which cheaper methods and material can supply. If gold is unattainable, better amalga than decay and pain. Better inartistic teeth of disagreeabl whiteness and mechanical regularity on clumsy rubbe plates, than to have the mouth cumbered with painful an offensive old roots. Though showing a common honesty an a common science, of necessity, dentists must differ in styl and method and grade to meet the needs of the differen strata of society. There is room for all. Let us all moun as high as we can upon the ladder of success, but let us no shake down, from their low perch, those still trembling an struggling with fate upon the lower rounds.

"Men die, but institutions live." And we may hope that long after we have passed away, this Society will still liv and still remain an honor to the profession and useful t the world. It may be, the time will come when man, having filled the world with machinery and perfected hi domestic animals, will find time to improve himself. If tha golden era ever does come, we may be sure that dentist will be in demand. Not, as now, to remedy defects, but i the higher office, to prevent them. Incipient mothers wil come to him for advice. Children will be trained unde his eye and with his counsel. Chemistry, hygiene and ar will unite their mystic forces so secure a sound body—the only possible dwelling-place of a sound mind.

It may well be a matter of pride to us that the American dentist leads the world, in an art that, more nearly than any other, marks the progress of a people in wealth, intelligence and refinement. Where a skilful and honest dentist is not appreciated, there the people are ignorant or thriftless, or coarse or vicious, or all combined. Knowledge and cultivation prompt to constant watchfulness over the agencies of evil that are ever marshalled against these tenements of clay—so "fearfully and wonderfully made." Health and vigor are so dependent upon good digestion, and this again upon good teeth, that the loss of these opens a wide avenue to the invasion of disease and death. "Cleanliness is next to godliness." A clean, pure, healthy body, helps mightily to saintliness of soul. The mouth is the vestibule of the body. If that is not kept swept and garnished, there is no hope of finding purity within.

In this transition period of our profession, if all is not gold that glitters, and some hold forth a science falsely so called, and others temporarily ride the wave with honors to which they have no claim, we must consider it the evil of the situation and wait patiently for the calmer day when the men and work of to-day will be weighed in standard scales, and be stamped with their true and absolute value and character. But with all our deficiencies and errors, let us hope that the present works and records of American dentistry will contribute some of the brightest evidencies of the achievements of our era in those graceful arts which adorn and dignify human life.

As members of a profession it is not ours to accumulate large wealth or to gather civil honors. The only ambition we should cherish must find its accomplishment in ideal excellence. Next to our religion and our domestic ties, devotion to professional duty should be the controlling sentiment of our lives. Let us idealize our profession; let us devote ourselves to it as a science; let us love it as an art.

Let us see beauty in our handiwork—in the glitter of jewelled teeth—in the naturalness and harmony and artistic blending of all excellences in our substitutes for the pearly organs of nature. Let us find pleasure in the good we do—in the prevention of pain—in the comfort and enjoyment we render possible—in the restoration of beauty to the deformed—in the healthful vigor we increase and prolong. Let us not expect or seek full remuneration in money for all this weary labor of hand and eye and brain. So much money for so much work would be poor and unsatisfying recompense to men imbued with love of science and art. But rather let our reward be in the satisfaction that comes from high attainment—from the appreciation and gratitude of patients who realize the benefits they receive—from the respect of professional brethren—from anticipation of the good name and fair fame we shall leave behind us.

Many of us, alas! will not live to realize the full fruition of our work in large business and fees. But not one—who loves his profession—who aims high—who marches toward pefection with unflagging step—shall miss the reward that comes from consciousness of high endeavor and duty done. This does not wait for external recognition, but is a perpetual fountain of joy in each man's inner life. With so many incentives to faithful labor and high achievement, giving our lives to science—to art—to duty—to man—to God—our pathway is onward and upward.

ARTICLE III.

Disease of the Antrum.

By Dr. H. D. Boyd.

Sept. 1st, '71, Annie Y— age 30, called on me to have a tooth extracted. On examination I found the mouth generally, in a wretched condition, all of the upper teeth decayed near by to the gums, but not entirely gone, face and head giving general pain, right cheek slightly swollen, the right eye much protruded, the pupil presenting a pointed and decidedly greenish appearance, and the sight entirely suspended. General bad health for four months past, about which time the trouble commenced with the eye. I decided that the trouble was the result of disease of the antrum, and caused by the right superior first molar which I extracted in company with every other tooth or parts of teeth in the upper mouth, using ether as an anæsthetic. The patient went away, to call next day, but twelve hours after I was sent for, and found she had lost more than a quart of blood and was very uneasy. I arrested the hemorrhage easily by using ferri sub. sulph. Saw the patient three months after in good health, and with the eye in a normal condition.

SELECTED ARTICLES.

ARTICLE IV.

On the Replanting of Teeth.

By Geo. T. Barker, D. D. S.

[A Paper read before the Southern Dental Association, Charleston, April, 1871.]

Perhaps no subject at the present time is attracting more attention among the advanced thinkers in dentistry than that which is the subject of this paper: for not only does the theme open up a vast field of study and conjecture, how far and how frequently, such a mode of procedure may be practicable, but it brings us naturally to a study of the pathological changes which arise from such action, and the relation which the replanted tooth bears to the rest of the economy. We are led to study the physiological as well as the pathological changes which take place in that remarkable membrane, the periosteum—a membrane, whose agency, recently recognized, as a bone producer, can be said to have remodelled a branch of surgical practice during the last few years, having thus effected the preservation of many limbs that otherwise would have been amputated, and destroyed the usefulness, if not the life of many a patient. The subject of replanting extracted teeth is not new in dentistry; in many works of old writers we find a short reference to this subject, a summary of which may be stated as follows: If a wrong tooth has been extracted, or a tooth has been knocked out, it should be washed, the socket cleansed and the tooth replaced. Some believed that union of the separated pulp in the tooth and its former connection took place, because they found no discoloration subsequently ensue.

This view obtains to some extent at the present time, for we occasionally see such assertions in articles in dental journals, though in my judgment the position is erroneous, and cannot be supported by any reliable evidence or probable theory, for reasons which I shall present hereafter. But it is not alone in our dental works that reference has been made to this subject, for our magazines have contained from time to time articles where success is chronicled as the result of replanting extracted teeth. Generally, the authors have resorted to this mode of procedure when teeth have been knocked from their sockets by accident, and I doubt not that all within the hearing of my voice, who have been in practice for a considerable number of years, will remember such attempts in their own experience followed by varying successes. Though these cases have been recorded, the question whether or not teeth should be extracted for the removal of some obscure and otherwise—with our present knowledge—incurable disease, has not yet received the attention which it deserves, and has only been slightly referred to in brief communications, with which I am familiar. My object, however, at this time, is to direct the attention of gentlemen present to a more advanced step in this direction, and urge upon all to prosecute experiments in this particular field, viz: The extraction and replanting of teeth as a means of arresting incurable dental diseases. I will detail as an example, the following case, which has received treatment at my hands:

Miss H——, aged seventeen years, of a sanguo-bilious temperament, and decidedly healthy organization, presented herself for treatment for face and toothache, in July, 1870. She was at that time residing at Long Branch, N. J., a popular sea side resort on the Atlantic coast, and as I had made a careful examination of her teeth but a few weeks previously, which, with an unsuccessful search at that time for exposed pulps or dental irritation, led me to fly to that frequent statement of the bewildered physician and dentist, viz: that she was probably suffering from neuralgia, and had better see her physician and obtain some appropriate remedy. This request was complied with, but without relief being obtained from a pain which partook of the nature of tic douloureux, but which seemed to be most severe in the lower teeth of the right side. In a week she again presented herself, having suffered greatly. On making at this time a careful examination of her lower teeth, I found slight dental irritation at the root of the right second lower molar. This tooth had a small gold filling upon its grinding surface, and injections alternately of hot and cold water demonstrated the presence of an irritated pulp. My first step in the treatment was to remove filling, and, if possible, expose the pulp. This I could not succeed in doing, as the attempt gave so much pain. Failing in this, the cavity was filled with a pledget of cotton, saturated with carbolic acid, and covered with Hill's stopping, to prevent irritation from thermal changes. The carbolic acid was used with the object of inducing union between some of the elements of the tooth bone, as it is believed that, under favorable circumstances, carbolic acid will unite with albumen, an insoluble substance which will protect parts from irritation, and which is hence used for the treatment of sensitive dentine. Finally, blood was freely drawn from the gum over the affected root, and after the bleeding had subsided, the gum structure in the neighborhood was painted with the following preparation, which I have used in numerous instances with most favorable results:

℞.—Tr. iodinii, fl. ʒ iv;
Etheris, fl. ℥ i.—*Misce.*

The object of taking blood from the neighboring parts was to relieve the distended vessels of their accumulated contents; that of applying the ethereal preparation of iodine was to favor absorption of any effusion, the product of inflammatory action, a result which is more frequently obtained with this substance than with any other with which I am familiar, though care is necessary in its use not to allow the cheek or lips to touch the gum until the ether has evaporated, leaving the pellicle of iodine intact, or blistering of the parts will occur.

The treatment, however, was entirely unsuccessful, as the pain continued as bad as before, particularly at night. After a few days, the carbolic acid and gutta-percha filling were removed, and the ordinary arsenical paste introduced, for while it is a principle that the paste should not be introduced, until the inflammation has subsided in a pulp, as absorption will not readily take place in inflamed parts, yet occasionally the application will excite so much irritation that the pulp will die from over stimulation. In this case there was a thick covering of bone protecting the pulp from the arsenious paste, and absorption would have to take place through this plate before the pulp could be influenced. The introduction of the paste only added to the pain, and though retained for some forty-eight hours, did not in any way diminish the sensitiveness of the pulp. The carbolic acid and Hill's stopping were again introduced, only to be followed by the same result as above stated. At this time the young lady had become so much worn down from loss of sleep that resort was had to the syrup of the hydrate of chloral as an anodyne, the following prescription being used:

℞.—Chlorali hydratis, ʒ ss;
Aquæ distil., fl. ℥ iv;
Syr. aurant.,
Mucil. acaciæ, aa fl. ℥ ss.—*Misce.*

A tablespoonful was given at night. And I would here state though used very frequently for six months by this young lady, it was not found necessary to increase the dose, as a tablespoonful at night would cause a good night's rest to ensue, while no headaches or other unpleasant result were present the succeeding day. It is too much to claim that the continued use of anodyne would present the same peculiar advantage in all cases, as we must ordinarily expect to resort to an increase in quantity and frequency of doses, the longer any sedative is used.

The pulp paste was again introduced, was retained for forty-eight hours, though she suffered excruciating pain, but was finally removed, the pulp still being as senstive as ever. Resort was now had to an anæsthetic; the young lady was placed fully under the influence of chloroform, (as her friends preferred that anæsthetic, though my own preference is always for ether,) the pulp cavity was drilled into, and the living pulp wholly removed. Of course, my belief was, that the trouble would now end. The pulp chamber was left open; the gums thoroughly painted with officinal tincture of capsicum, and the patient dismissed with the assurance that all pain would in a short time cease. The next day the tooth was as painful as ever, the inflammation of the periosteal membrane as great as before, the tooth was elongated, and there was no improvement whatever over the former condition.

The following treatment was then resorted to: one-sixth of a grain of morphia was injected hypodermically over the root. This was followed by temporary relief only. Five drops of tincture of aconite root were then placed on cotton and laid over the effected root; partial relief followed. The tooth was not constantly painful, but shooting pains would occur frequently during the day; no sleep could be obtained at night without using the syrup of hydrate of chloral, as the pain was generally constant at that time. In this way the tooth continued for the space of nearly six months, every effort being made on my part to reduce inflammatory action, and to have it terminate in resolution, and every agent with which I am familliar, that could possibly be used, was tried, unsuccessfully. An effort was then made about the first of the present year, to obtain a termination of the inflammation by suppuration, in the hope that an abscess would be formed, which could be more successfully treated. Heat to the face on the effected side was tried, frequent use of hot water in the mouth, hot fomentations and cataplasms, all of no avail; it would not terminate in suppuration, but would simply ache! ache! In the whole of this time the young lady had never once asked to have the tooth extracted, but had borne the pain with a heroism truly wonderful, and which in consideration of my numerous failures entitled her to be considered the most courageous person with whom I had ever met in my professional experience. The determination was now made in my mind to extract the tooth, and if practicable, replace it. Accordingly, chloroform was administered; the tooth was extracted; the end of the root (fortunately this second molar had the roots joined,) was cut off, and the tooth was instantly placed in a solution of tepid water, fl. ʒ ss, carbolic acid, gtt. v. The socket was wiped with the solution, and the blood carefully removed. A broach was introduced into the pulp cavity, which was found be entirely free, and the tooth was carried into its former socket, the shape of which favored its retention. The cavity through the tooth was left open, and the patient was dismissed. No after treatment except an astringent wash has been made use of, and no pain of any consequence has been felt up to this time. The articulation is perfect, the tooth is as firm as other molars in her mouth, and it is closed with a good temporary filling, which I shall in a short time replace with a permanent one of gold; and much to my own and the young lady's gratification, her courage bids fair to meet with what, in her estimation, is a fair compensation for her sufferings. The part of the root removed (which is shown) presented these characteristics; the periosteum was greatly inflamed, but just outside the apical foramen there was a small mass of apparent pulp tissue, having somewhat the appearance of an abscess, only smaller, and apparently solid in structure. This mass was placed beneath the field of a microscope, and was found to consist of true pulp tissue, containing multitudes of calcareous granules. Here, then was the secret of all my trouble; instead of a calcified pulp, as shown in these specimens, or nodules in the pulp, which many doubtless have seen, there was developed or deposited granular matter, which, so long as present, excited intense inflammation, first in the tooth pulp and periosteum, and lastly in the periosteum and tooth socket. The object in cutting off the root was, to allow a place for the accumulation of the effusion, which would certainly be poured out, as the result of the extraction, and which, accumulating, would tend to protrude the tooth from its socket, and interfere with articulation—a result which generally follows when teeth are replaced, and this action is neglected, causing the tooth sooner or later to drop from its socket, or be a constant source of annoyance to the patient. My belief is, that the remaining periosteum on the root of the tooth is at this time living; that that membrane does not undergo molecular death so readily as other structures, and that under favorable circumstances vitality will remain. I have proved this position beyond the shadow of a doubt, in cases where teeth have been returned to their sockets, and have been extracted, living periosteum being found upon them. That a separated pulp can unite to its former connection does not admit of a probability, for the retraction and contraction of the divided vessels would prevent such a result from being accomplished were union by adhesion possible; therefore, when a tooth is inserted, with the pulp remaining, there is every probability that alveolar abscess will occur, and the absence of discoloration is only an evidence that the absorbents have carried off the effete materials, the result of a disintegration of the pulp.

As a fitting close to this paper may we not assume that the transplanting of teeth opens to us a method of successfully treating some obscure dental diseases, and of combating intractable alveolar abscess, partial necrosis, exostosis, and perhaps other dental affections. It seems to me the answer must be in the affirmative.—*Dental Times.*

ARTICLE V.

The Celluloid Base.

By Preterre Brothers, New York.

We have the pleasure of communicating the result of a series of carefully conducted experiments, by which we are enabled to simplify and improve the process of moulding plates out of "The Celluloid Base," so that now it can be used for dental plates with perfect success as a substitute for rubber.

As we do not intend to take out patents for our improvements and discoveries, and wish our friends to share in the advantages they produce, we will describe the details of two processes (either of which may be used) of moulding dental plates, in which we dispense with all the usual machinery, except the flask and screws.

We prepare the flask, cut the channels and gates for the escape of the surplus material, select the plate for the base, and place it over the mould in the flask, according to the printed directions for using the celluloid base, with the exception that no gum is mixed with the plaster of which the mould is formed. Then commence our improvements; in which both of these processes the ordinary rubber flask can be used as well as the special one designed for the celluloid base. In neither of them is oil used as the medium of communicating heat to soften the material, and in both of these processes the plaster must be ordinarily moist.

In one process the flask and material, prepared as above described, are plunged into boiling water; almost as soon as the boiling water touches the material it begins to soften, and the tightening of the screws can commence, and they may be further tightened every half minute, until the edges of the flask are pressed close together, when the moulding will be completed, and the flask must be plunged in cold water to cool the case. Upon opening the flask, the plate will be found as perfectly moulded as if it had been immersed in *oil* at a temperature of three hundred degrees. We have moulded plates by this process in five minutes.

In the other process, the plaster mould in the flask must be moist, the material for the base is placed on the mould in the flask, the upper part put on, and the flask so prepared placed over a jet of gas, or the flame of an alcohol lamp; as soon as the steam begins to issue from the wet plaster, the material will be soft enough to commence tightening the screws, and in a few seconds the two parts of the flask may be brought entirely together, and the moulding of the plate completed, and the case must be cooled as already described.

In the last process, the channels and gates that are cut to receive the surplus material must be so arranged that none of it can touch the iron flask, as the flask becomes so hot that the material would ignite if brought in contact with it, and the case be spoiled. Should the material by any accident ignite, plunge it into cold water. If this is done quick enough, the case may probably be saved.

We think it a matter for congratulation, that in the different preparations of collodion that are known by the name of "rose pearl," "pyroxyline," "the celluloid base," etc., the profession can find substitutes for rubber in the making of dental plates.

So that the aims of these extortionating companies may be defeated, we shall always place before our friends any improvements that we may make that will tend to accomplish that object.—*Dental Cosmos.*

ARTICLE VI.

Chloral.

At the present time perhaps no remedy is more extensively used and more generally discussed than chloral. In the minds of the public an exaggerated estimate of its dangerous capabilities is entertained that is not at all borne out by professional experience. Medical testimony seems to be almost uniform as to its comparative innocency in physiological conditions, and those pathological states in which it has proved dangerous have not been defined, nor has any one, to the best of our knowledge, attempted to generalize these objectionable states. In an interesting article on this subject, in the "American Journal of Insanity," Dr. J. B Andrews has collated a number of cases in which excessive quantities have been administered without fatal consequences, and others in which a comparatively small dose has occasioned death. Dr. Williams, of Baltimore, saw a case of attempted suicide in which 600 grs. had been taken, after remaining eighteen hours, without medical interferance. In the "Chicago Examiner" a case is reported, in which 240 grs. were taken by a lady suffering from neuralgia, who also recovered, after eighteen hours of coma, under the use of galvanism.

Dr. Ludlaw had a case in the Philadelphia Hospital, in which 460 grs. were taken at a dose. "Recovered under proper treatment;" the nature of the treatment is not specified, nor the time of insensibility. In the "English Practitioner two cases are recorded—husband and wife—one of whom took 180 grs. and the other 120 grs. yet both recovered without having experienced any ill effect whatever after a sleep respectively, of twenty-six and eighteen hours. We have ourselves seen a case in which 240 grs. were taken accidentally without inducing sleep, but without ill effect except a slight delirium. On the other hand, we have seen in a case of softening of the brain in an old scrofulous and epileptic subject, the most alarming effect occasioned by 10 grains.

In the "Pacific Medical Journal" a case is related where a comatose condition was induced by 20 grs., from which the patient recovered without subsequent injury. In the hands of Dr. Reynolds, of London, 50 grs. produced "dangerous symptoms." Dr. Fuller reports in the "Lancet," a case in which 30 grs. twice "produced alarming symptoms," and another in which the same dose caused death. The "Buffalo Medical Journal" contains an account of a case of death from 400 grs. The "Medical News" has a report of a fatal case "in which the post mortem revealed cerebral congestion." The death of two surgeons is reported in the "London Medical Times and Gazette," one of whom suffered from heart disease, and the other "took by mistake an overdose." The amount is not stated in either case. Dr. Hugh Norris, reports, in the "Lancet," a case in which a patient under treatment for hysteria, complicated with spinal irritation, took a large quantity of this drug in addition to that prescribed by the physician in attendance, amounting in all to "712 grs. in nine days; the last 260 of which were taken in thirty-five hours." One hundred hours after death an autopsy was held, of which the following interesting statement is taken from Dr. Andrews' article:

No odor from decomposition perceptible except in the air displaced from the lungs. There were scarcely any puncta sanguinea in the white portion of the brain, which was very fresh and firm, and little if any fluid in the ventricles. The liver was much enlarged, slightly congestive, and somewhat leathery. The kidneys were enlarged, but not apparently diseased. The heart tissue was somewhat pallid; the ventricles were empty; the áuricles partially distended by dark semi-coagulated blood. Stomach not opened; body well nourished; other organs healthy but firm; no decomposition; no ordor of chloroform.

A portion of the lung, liver, heart, kidney and spleen were submitted for analysis. From Mr. Stoddard's report we extract: "The first thing that struck me was the very extraordinary way in which the several portions were preserved. Even now, although more than a week has elapsed since death, yet not the slightest sign of decomposition has taken place, nor any unpleasant odor. This doubtless is the effect of chloroform in the tissues."

From the *contents* of the stomach, when mixed with potasl and soda, and subjected to distillation, drops of pure chloroform were obtained. This was also found in the liver, bu in no other organs. There was no odor of chloroform fron any of the tissues of the body, and *the contents of the stomach had no perceptible smell of it till after the addition o alkali.*

Tests for all the poisons that were probable were use without success. Mr. Stoddard gives his opinion from th examination: "There seems no doubt that an excess o chloral must have been taken, and the resultant chloroforn was so disseminated through the tissues that they were completely preserved."

As to the mode of death, Mr. Norris adopts the opinio of Dr. B. W. Richardson, "that in such cases dangerous decomposition of the blood may occur before coma is produced, and that the repetition of considerable doses of chlora would be followed by the formation of formiate of soda i the blood, by which its coagulating power would be muc diminished; and that in such cases the symptoms would b similar to those induced by loss of blood."

It will be observed "no odor of chloroform" was detecte in "any of the tissues of the body, and the contents of th stomach had no perceptible smell of it till after the additio of an alkali." Yet Mr. Stoddard, the chemist, who examined the tissues, it would appear, concludes that the absenc of decomposition "is the effect of chloroform in the tissues, resulting from the decomposition of the chloral. This woul have been a more logical inference had chloroform bee found alone in the stomach, where we might suppose a portion of the very large quantity of chloral taken had remained unabsorbed. But it appears drops of chloroform wer not only distilled from the stomach, but "*this* was also foun in the liver."

Now, is it, in the first place, likely that so volatile a substance as pure chloroform would have remained one hunpred hours in the liver after death; and in the second plac would the addition of an alkali have been necessary to liberate it if the chloral had already been decomposed in the stomach or blood? or, are we to suppose that the blood had been dealkalized by the excessive quantity of chloral used, and hence the excess of chloral alone remained undecomposed? The blood should have been tested to resolve this question. For ourselves, we utterly disbelieve in the decomposition of chloral into chloroform as its normal physiological mode of action, for these reasons: We do not get the same effect from chloroform administered by the stomach, as we should do if chloral is there decomposed. Chloroform administered by the lungs in ten times the quantity that would result from the decomposition in the blood of a full dose of chloral, does not produce as lasting or as profound an effect. Moreover, the character of their respective effects is, in our judgement, entirely different, and this we think, will be apparent to any one accustomed to the use of both drugs who will carefully note them. We are not, however, prepared to state specifically in what this difference consists. And lastly, the fact brought out in the chemical analysis by Dr. Stoddard, that no trace of chloroform was discovered until such chemicals were used as would decompose the chloral had found its way to the tissues in its normal state.

Prof. N. R. Smith, of Baltimore, in some remarks on this agent, made before one of the medical societies of this city, spoke of a troublesome eruption upon the fingers and hands that he had several times observed from the long continued use of chloral, and expressed the opinion that it is a most dangerous remedy when continued for any length of time; this opinion, however, is not shared by any other physician in Baltimore, so far as we are aware; the views of Prof. Smith meeting with unanimous disapproval in a discussion subsequently had in the Baltimore Medical Association. We find no reference whatever to an effect of this kind in Dr. Andrew's report, though in the N. Y. State Lunatic Asylum, to which he is physician, 90 lbs. have been used since February, 1870. The number of cases prescribed for was 370; the average length of time during which it was given was 39 days to the men, 43 to the women. In a case of melancholia it was given in 20 gr. doses for 257 consecutive nights; in a case of mania 60 grs. were given for 195 nights; in three cases of melancholia and one of acute mania it was given in 20 gr. doses for 221, 255, 207, 257 nights, respectively; in two cases of acute mania and one of melancholia, 40 grs. were given for 236, 222 and 207 nights, respectively, and in many cases for very long periods without ill effect.

Dr. Shew, of the Connecticut Hospital for the Insane, refers to a slight irritation of the eyelids resulting from its continuous use, but we no where else find any reference to any ill effect from its continual use. We must therefore infer that the effect observed by Prof. Smith is an exceedingly rare one, or that it was due to some other cause than the administration of chloral.—*Editorial, Balt. Medical Journal.*

ARTICLE VII.

On the Transmission of a Predisposition to Diseases by Inheritance.

By T. B. Smith, M. D.

The transmission by inheritance of a predisposition to disease, is the result of the same general law of nature which gives form and features of progenitors to their offspring. There is an ingrafted tendency in all living organized matter to reproduce itself. "Like begets like." From this it must follow as the relation between cause and effect that the subjects of unsound organism, and feeble vital forces cannot propagate healthy decendants. The same thing occurs, but less obviously to common observation, in the the mental and moral world. An unsound condition either of body or of mind is very likely, nay, almost certain, to be perpetuated in the offspring of such parents. This law may be very much modified by various counteracting influences.

For example, there may be in parentage two opposing forces or causes, bane and antidote. Thus, the paternal side may be of unsound organism and feeble constitution, with actual hereditary disease in his system, while upon the maternal side there may be firm health and a highly vitalized system, with no hereditary taint in her organization. The offspring of such a parentage would probably escape the disease of the father, the healthy tendencies imparted by the mother rendering inoperative, diluting or attenuating the *causi morbi* transmitted by the father, though it might possibly crop out sooner or later, in some one of his descendants, particularly if the element thus transmitted were tuberculous.

The hereditary diathesis may undoubtedly be transmitted from parent to child, and yet remain in a quiescent state perhaps for several generations, the circumstances and conditions which would tend to develope it in to active disease not occurring; and diseases regarded as hereditary may be acquired in the absence of any predisposition to them, the conditions which develop an hereditary disease originating it; and when originated a momentum is acquired which is transmissable by inheritance.

First in importance in the list of hereditary diseases, and the one least under the control of remedial measures, is pulmonary tuberculosis. It prevails in all parts of the globe, and in all climates. It is said to carry off one fourth of the inhabitants of Europe, and that estimate would probably not be too much for this country. It is of high antiquity, and has prevailed with almost equal fatality in all ages of the world.

When the tubercular diathesis is manifested in the form of enlarged and indurated tonsils, and swelling and suppuration of the cervical gland, it is thought to avert its development in the lungs, persons thus affected in childhood seldom dying of pulmonary consumption, the morbid material upon which the disease depends seeming to be exhausted or eliminated from the system in that way.

Though the hereditary diathesis in phthisis pulmonalis is more marked and its fatal results more certain than in most of the transmitted predispositions to disease, there are other inherited tendencies equally dreaded, the cancerous diathesis much more, and the constitutional tendency to insanity and intemperance quite as much.

These diseases, as before remarked, are no doubt often the result of accidental causes: hardship, exposure and imperfect nutrition may induce consumption in a sound constitution; a blow upon the female breast may originate cancer of that organ; insanity may be the result entirely of moral causes, and intemperance induced solely from the acquired habitual use of intoxicating drinks, without any particular constitutional tendency thereto. But that these maladies are all transmissable by inheritance observation has established beyond a doubt, and in a great majority of cases they are the direct result of an hereditary diathesis. Habitual intemperance has come to be regarded as an actual constitutional disease, known as chronic alcoholism.

The constant action upon the animal economy of so deleterious an agent as alcohol in large quantities cannot but produce very great and serious organic changes, which it is well known it does produce in the stomach, the liver, brain and kidneys, and in fact changing the whole nature, physical and moral. That such a condition in a parent should impart to the offspring a predisposition to like results is in accordance with the general law of transmitted tendencies.

The hereditary diathesis can never be eradicated from the system; it is engrafted upon the very nature. Hereditary disease may be arrested or retarded, but the predisposition to it will ever remain. This class of diseases are most of them but very little under the influence of remedial agents; there are no known specific remedies for the cure of consumption. Medication has no doubt been productive of more harm than good in the treatment of this disease. Hygienic measures seem to exert more influence over it than medicine Out door exercise, a generous diet and the various other hygienic means tending to promote health are more to be relied upon than any other remedial measures. It is doubtful indeed whether a change of climate exerts any beneficial influence except in so far as it conduces to a change of habits, as regards exercise and outdoor life.

In the treatment of cancer it is said that a specific has been discovered in a plant growing in the mountains of Ecuador, in South America, the cundurango. It has been used, it is said, with success in this country, in the treatment of many cases of this disease. But I judge it has not yet had a sufficient trial to establish its claim as a specific in this malignant malady.

It is believed by some enthusiastic minds that among nature's hidden resources there will yet be discovered a "panacea for all the *ails* which flesh is heir to." But this Utopian dream will probably never be realized; good and evil, health and disease have ever been coexistent, and unless the order of nature is changed, must ever continue to be.

Insanity and intemperance as such seldom come under treatment in private practice. These cases are generally committed to public institutions for treatment—the insane and inebriate asylums—from their adaptation to the employment of the improved means which an advanced science and an enlightened humanity have suggested, in the treatment of these cases.—*Med. and Surg. Reporter.*

MONTHLY SUMMARY.

To Crystallize Plants, Flowers, &c.—Dissolve 18 oz. of pure alum in a quart of distilled water by the aid of a boiling heat. When the solution is nearly cool, suspend in it, by a thread of silk, or fine twine, the objects to be crystallized for about twenty-four hours; they are then to be taken out and suspended in a dry, shady room till thoroughly dry. The proper temperatute for the solution in which the object is to immersed is about 95 degress, F. When the solution is too cold, the crystals formed will be too large; and when too hot they will be too small. If different colors are desired, they may be given by boiling in the alum solution a little indigo, logwood, French berries, or a soluble vegetable or mineral dye, whose chemical nature does not decompose or is not decomposed by the alum. Among the subjects adapted to this purpose, may be mentioned the moss rose, ears of wheat, barley, oats and other cereals; the grasses, and any variety of flowers; various insects, such as are interesting in the study of etymology; and above all, the most endless variety of sea-weeds and mosses, which form one of the most beautiful features in the study of botany. For parlor ornaments, especially in the country, these preparations are vastly superior to, and more attractive than the more costly works of art.—*Jour. App. Chem.*

Effects of Alcohol and Tobacco on the Sight.—On the subject o color-blindness and amblyopia, Dr. Richard H. Derby (*N. Y Medical Journal*) says: "Almost always both eyes are affected This form of amblyopia occurs almost solely in men: out of fifty-six cases only three were women. It is a disease of adults its frequency increasing from the twentieth to the fortieth year In a portion of the cases abuse of alcohol was certainly the caus of the affection, and in others the excessive use of tobacco undoubtedly contributed to produce the disease. Forster, in paper on the injurious action of tobacco on the vision, attache still greater importance to this agent, as a cause of amblyopia supporting the views of Mackensie Sichel, Hutchinson, Lureir and others. The author cites twenty cases, in which there wa a central scotoma, with a horizontal diameter of 18° to 25° within which large letters could still be recognized. All of thes patients suffered from some affection of the digestive and nervou system. Loss of appetite, constipation, loss of sleep, were common symptoms. Each one of the twenty patients was a stron smoker, and in eleven of these cases a very marked improvemen was observed when the use of tobacco was given up."

Poisoning by Hydrate of Chloral—Strychnia as an Antidote.— Dr. Charles Marshall reports a child, one year old, had bee suffering from general irritability, complicating a prolonged diarrhœa. At 12 o'clock a mixture containing three grains of chloral was ordered, one-third of the whole mixture to be given every three hours. By a mistake of the nurse the whole three grains were given at once. At 8 o'clock the patient was again seen. The pupils were contracted, respiration gasping, with general prostration. 1-32 grains of strychnia was now administered as an antidote, but no good result followed. To ward off the approaching syncope, a cold plunge bath was given, followed by a mustard bath, but without avail.

Child died at ten o'clock, ten hours after taking the fatal dose. At the post-mortem the mucous membrane of the stomach was found normal, but in it there was a marked odor of the hydrate.

The intestines showed intero-colitis, but it is not probable from the progress of the case that this was the determining cause of death.—*Med. and Surg Rep.*

Lead-Line on the Gums.—Dr. William Frank Smith, in the *Lancet*, writes: When I commenced practice in Sheffield, I employed the iodide of potassium as an eliminative, and while employing it made a somewhat remarkable observation, which has been since confirmed by Dr. Hilton Fagge. A man came under my care with severe lead palsy. On examining his mouth, I was surprised, to find the lead line absent; there was no trace of it, though I looked carefully with a good lens. I pointed this out to the then house surgeon, Mr. Cooper, and to one of my colleagues. The patient was placed under the iodine treatment —doses, ten grains three times a day. In the course of a week or two I was very much surprised to see little arches of black puncta over the roots of the teeth, and in the course of a few more days the blue line was well marked, disappearing again before he left the hospital, about six weeks after his admission.

The Formation of Pus.—Dr. Hartman gives his views in regard to the formation of pus. The pus cell he believes to be identical with the white blood cell and with the lymph cell, and, like these, to be formed from the elements of the lymph and chyle. "I believe," he says, "that pus cells are only white blood or lymph cells, but that they do not come out of the circulation, but are developed where they are found, at the seat of the inflammation." Inflammation gives rise to an arrest of the circulation in the beginninig of the lymphatics, in the vasa serosa, in the connective tissue cells, and even in the capillaries. This it is which gives rise to the inflammatory swelling. A development of lymph cells (pus cells) now takes place in the stagnating lymph contained in the lymphatics, and also in the connective tissue cells; finally the latter burst, and the fully-formed and immature pus cells are extravasated. This is the process of the formation of pus as it is observed in the connective tissue cells.

No Life without Phosphorus.—Dr. Frandlin has been making some experiments upon the developement of fungus growth in potable water; and, as a result of his labors, arrives at the following conclusions:

"1. Potable waters mixed with sewage, urine, albumen and certain other matters, or brought into contact with animal charcoal, subsequently develop fungoid growths and other organisms, when small quantities of sugar are dissolved in them and they are exposed to a summer temperature.

"2. The germs of these organisms are present in the atmosphere, and every water contains them after momentary contact with the air.

"3. The development of these germs cannot take place without the presence of phosphorus in some form of combination. Water, however, much contaminated, if free from phosphorus, does not produce them. A German philosopher has said, 'without phosphorus, no thought,' which may now be changed to without phosphorus, no life.' "—*Med. and Surg. Reporter.*

A New Styptic.—Collodion. 100 parts; carbolic acid, 10 parts; tannin (Pelouse's), 5 parts; benzoic acid (from gum), 5 parts.

Mix the ingredients in the order above written, and agitate until perfect solution is effected. This preparation has a brown color, and leaves on evaporation a strongly adherent pellicle. It instantly coagulates blood, forming a consistent clot, and a wound rapidly cicatrizes under its protection.—*Carlo Parvesi.*

EDITORIAL DEPARTMENT.

Statistics of the Dental and Medical Professions in the United States.—Dr. Blake has collected from original sources, and with considerable labor, statistics of the dental profession from which we take the following:

There are in the United States 13,000 dentists, whose annual income is estimated at $24,000,000. Their expenses for material and rent are $6,000,000, leaving $18,000,000 as the nett income of the entire profession.

There are nine Dental Colleges, which have given to the profession 1807 graduates. The oldest of the[illegible]—that of Baltimore—was founded in 1840, and has graduated 644 students. They are located, two in Boston, two in Philadelphia, while Baltimore, New York, Cincinnati, St. Louis and New Orleans have one each.

Scattered throughout our country sixty-eight Dental Associations are found in existence.

There are seven periodicals published in the interest of our profession, whose united circulation is 9,800 copies, monthly. Three of these are located in Philadelphia, and one in each of the cities of Baltimore, Buffalo, Cincinnati and St. Louis.

Dr. J. M. Toner, of Washington, D. C., has collected the following interesting statistics of the medical profession:

Regular physicians	39,070
Homœpathic physicians	2,961
Hydropathic physicians	133
Eclectic physicians	2,860
Miscellaneous and unknown	4,774
Whole number of physicians of all classes	49,798

This gives a ratio of 16.8 physicians to one homœopath in the whole number, and 13.1 regular physicians to one homœopath. Estimating the population of the United States in round numbers at 39,000,000, we have one regular physician to every one thousand of the population. The proportion of homœopathic physicians to the whole population would be about one in every 13,000.

Condensed Form of Nitrous Oxide Gas.—At the late meeting of the American Dental Association, held at the Greenbrier White Sulphur Springs, a condensed form of nitrous oxide gas with apparatus, was on exhibition, and the advantages it possesses over the more bulky apparatus, and troublesome way of preparing it by the common process, was apparent to all. The advantages which this condensed form possesses, are described in an article we take from a correspondent of Middletown, Conn., which was published in the *Hartfort Post:*

"Anything that tends to relieve human suffering or to widen the application of the means for its relief is worth public attention; and in these days of quack nostrums where money is only sought without rendering any just equivalent, every real improvement should be hailed with delight. From the time that Horace Wells applied the nitrous oxide gas to produce insensibility during surgical operations, to the present, various methods have been devised, and many substitues for this gas have been introduced, all of which have had more or less merit, but none which have been as safe as the gas which was originally used for this purpose. But the objection to this was its bulk, and the difficulty of its manufacture, so that any one who used it to any extent must be provided with the means, and must understand the method of its manufacture. In addition to this was the uncertainty as to its purity and freedom from noxious and unpleasant odor, but when well prepared it was acknowledged to be by far the most pleasant and safe agent for producing insensibility. In England, about two years ago, this gas was successfully reduced to a liquid, but in order to retain it in that state it had to be kept in iron bottles of enormous strength to prevent bursting. In this form it was palatable and was used to a considerable extent, and with great success, particularly in the late Franco-Prussian war. Various attempts have been made in this country to learn the method of its manufacture, and sums as high as $5,000 have been offered for even a set of apparatus for this purpose. But our English cousins seem determined to keep this good thing to themselves, and refused to part with the secret. It is, therefore, the more gratifying to learn that Johnston Brothers, 812 Broadway, New York, sons of Professor John Johnston, of Wesleyan University, and educated at this place, have succeeded in accomplishing the same result, and can furnish one hundred gallons of this gas condensed into a liquid in a bottle twelve inches long by three inches in diameter, so that it can be carried with the surgeon or dentist and used at the home of the patient as well as at the office; and we can assure our readers that the effects are truly wonderful. By this method, too, the absolute purity of the gas is excluded by the very nature of the operation. Its effects, too, are more rapid and pleasant than those of the gas prepared by the old method.

"We are informed that these bottles are subjected to a hydrostatic pressure of 5000 pounds to the square inch before being used for this purpose. From this fact alone some idea may be formed of the complicated and powerful character of the apparatus employed in the manufacture of this new article."

American Academy of Dental Science.—The Fourth Annual Meeting of the American Academy of Dental Science, will be held in Boston on Monday, September, 25th, at eleven o'clock, A. M.

The Annual Address will be delivered by Professor J. H. McQuillen, of Philadelphia.

BIBLIOGRAPHICAL.

Taking Impressions of the Mouth.—A work with this title has recently been issued by James W. White, as editor and Samuel S. White publisher, to which is appended a Chapter on "Porcelain Teeth," from the new edition of Harris's Principles and Practice of Dentistry, in which will be found a great deal of information interesting to many of the members of our profession.

The work is written in a clear, comprehensive style and enters into the subject very minutely, describing a number of different processes by which this important operation of dental mechanism can be accomplished. It is profusely illustrated, and appears in a style which is suggestive of the energy and good taste of the publisher. It contains in the form of a finely executed lithograph, a quotation from Josiah Wedgwood, which may be readily removed and framed for the benefit of patients in the dental office, and which will prove servicable as a forcible argument against quackery and cheap dentistry.

We cheerfully recommend this work to all dental practitioners.

A Review of Darwin's Theory of the Origin and Development of Man.—By James D. Hunter, M. D. Published by D. Appleton & Co., New York. The Editor of this work, which is well written, while he admits that the strongest arguments of Mr. Darwin, based on the well known and remarkable similarity between man and the lower animals in embryonic developments, upon similarity of structure and constitution, and upon the rudiments which man retains of extinct organs found in perfection lower in the scale, are striking facts that cannot be ignored, yet does not find it so easy to believe that all the vast difference intellectually and morally, between man and his brute brethren can be accounted for by development alone, as Mr. Darwin asserts.

Plastics and Orthopedics.—A report from the Transactions of the Illinois State Medical Society for 1871. By David Prince, M. D. This report is a full and comprehensive one on the principles, expedients and specialists of *Plastics* and the different operations pertaining to Orthopedics, and is illustrated by twenty-eight wood cuts.

New Remedies.—A quarterly retrospect of Therapeutics Pharmacy and Allied Subjects. Edited by Horatio C. Wood, Jr. M. D., Professor of Medical Botany. University of Penn. etc The July No. contains much useful information under the respective headings of Therapeutics, Materia Medica, Toxicology Prescriptions and Formulas, General Receipts, Druggists Sundries and Manufactures. Published by Wm. Wood & Co., New York. Terms $2.00 per annum.

OBITUARY NOTICES.

We regret to announce the deaths of two prominent member of the dental profession in the South, Drs. T. J. Crow, of Macon Georgia, and Warren Johnson of Savannah, Georgia.

During the meeting of the Southern Dental Association, held in Charleston, S. C., in April 1871, the Committee on Memorials offered the following resolutions, which were unanimously adopted:

The Committee appointed to draft suitable resolutions in reference to the death of Dr. T. J. Crow, of Macon Ga., and Dr. Warren Johnston of Savannah Ga., beg leave to offer the following:

Whereas, it has pleased Almighty God to take from us two of our beloved brethren, and whereas, it not only becomes us, but it is our mournful duty, to pay a worthy tribute to the memory of those who have been so long identified with us, therefore,

Resolved, 1*st*, That in the death of our brethren we recognize the hand of an All-wise Providence, and though with grief we mourn their loss we bow with submission to the decree that has deprived us of those who won our highest esteem by their devotion to the interests of our profession, and who endeared themselves to us by their kindness of heart, which rendered them ever ready to alleviate the sufferings of humanity.

Resolved, 2*nd*, That we give expression to our fervent trust that *our loss has been their gain*, inasmuch as they were ever known as faithful dentists, thorough gentlemen, and uprigh citizens.

Resolved, 3*rd*, That a page in the book of minutes of the Association be dedicated to their memory.

Resolved, 4*th*, That a copy of these resolutions be forwarded to the several Dental Journals for publication, and, also, to the relatives of our deceased brethren, with the assurance of ou heartfelt sympathies in their bereavement.

H. J. Royal.
W. H. Burr. } *Committee.*
M. A. Lowrance.
O. J. Bond, Rec. Sec'ty Southern Dental Association

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ARTICLE I.

MICROSCOPY OF THE TEETH.

Fragilitas, Dentium, Senilis and Hyper Cementosis.

BY S. P. CUTLER, M. D., D. D. S.

Prof. of Chemistry, Histology, and Microscopy. New Orleans Dental College.

There is a stadium prodromirum or stationary stage in animated nature, of longer or shorter duration, when the balance wheels are in perfect equilibrium in healthy individuals, that stage commencing at full maturity and ending at the commencement of decay and decline—or that period of each individual case when the inorganic begins to predominate over the vital or organic forces; a regular down hill grade or decadence commencing at the top of the hill of life and sliding down the inclined plane of old age, the mineral gradually, stealthily and slowly supplanting the vital elements and forces, until finally the vital yield and leave the mineral in full and complete possession of the organism.

During the developmental periods the vital elements and forces are in the ascendency, that is to say, the vital means the organic in contradistinction to the inorganic or mineral.

The one a physiological, the other a mixed or physiological and pathological condition combined.

The bones and teeth can be more readily studied under the microscope, and changes comprehended than any other tissue, the teeth being more readily accessible than the bone for observation; they will be mainly alluded to in this paper.

All observing dentists know from observation that the teeth of young subjects are whiter, softer, more sensitive, more animal matter and less lime in them, less resistant to acid action or decay than those of adults.

Hence there is observable a structural change taking place in the teeth in youth, in manhood and in old age, or decline steadily moving on, sometimes, perhaps, pausing for a time, or working more slowly, then again starting with renewed energy and continuing unto the end.

In the young the tubuli and pulp canal are larger than in the adult tooth, in the adult larger than insenility.

As these changes go on in the microscopic structure, changes are going on paripassu in the chemico-organic equivalents the lime preponderating more and more as age advances, the specific gravity becoming greater, the color more yellow, the texture harder, more brittle, less sensitive and less vital, more resistant to acid action because less porous or penetrable owing to occlusion, more or less, of tubuli.

In extreme old age the teeth beeame darker, pulp canal nearly or quite occluded, also tubuli, non-vital, cool, having no vital heat of their own after closure of tubuli and pulp canal, or only in proportion to degree of closure.

The conditions of the teeth spoken of above are infallible indices of the different stages of human life and by the examination of a tooth.

The experienced dentist ought to be able to point out the stage or period of life of the individual the tooth belonged to at the time of removal, and to approximate the age o the individual at least within one decade from the physical, microscopic and chemical characteristics of the tooth, and until the profession has so advanced it cannot claim to be elevated to the highest degree of attainment within their reach.

There might in theory be made some four cardinal epochs or sub-divisions in the life of the octogenarian of twenty years each or two decades.

The first twenty years would include the developmental period. The second twenty years, the comparatively stationary period, when the elements and forces just about balance each other, of decay and reproduction in well developed and protected organisms. In the weak and feeble, perceptible changes may be recognized.

The third twenty years, or the third period includes the fifth and sixth decades or the down hill grade of life, commencing rather slowly and ending more rapidly, the interdental changes marking the beginning and ending of this epoch, being more strongly marked during this period than any other except it be the first.

The fourth and last twenty years finishing or closing out of life; if the limits have been reached the dental changes will be strongly marked by closing up more or less completely the central and tubular structures where there has been only normal use of them, if abnormally exercised they will be closed sooner. The teeth are more subject to local influences than the other osseous structures, from the fact of their cropping out to the surface and subject to local chemical action, attrition and other influences that do not apply to bones in general.

The fundamental changes in the bones are not so apparent and striking as in the teeth, still the same general influences and changes are going on only not quite so energetically marked.

It is a well known fact to all surgeons that injured bones of the young recover much more rapidly than in middle age, and middle age more rapidly than in old age. In fact, in some cases of extreme old age, there seems to be no tendency to resistance, if at all only extremely slow and the process easily arrested at any time during recovery by disturbing influences, such as motion in a case of fracture.

The difference in this respect in different individuals is very great, owing to a variety of causes, such as habits, hereditary tendencies, temperaments, climate and occupation all exerting modifying influences.

Some mature very early, others later, sometimes some commence to decline by old age sooner than others.

Teeth of the first period named, are whiter and softer than the second period, and those of the second period, whiter and more vital than the third, the third more so than the fourth, all things equal. During the second period the canal and tubes close more or less, varying greatly in different subjects, they become slightly yellow also. During the first period and first decade of the second, there are more decays and loss of teeth than in any subsequent periods of equal time.

So long as the teeth remain firm in their sockets and free from tartar, the growth of cementum is not as great as when teeth become loose and diseased in their sockets.

We never find hypertrophy of cement during the developmental stages, when the teeth are sound and firm in their sockets, but frequently find this condition in cases of diseased sockets either without decay, and more frequently towards the end of this period.

In all such cases the effect is superinduced, and is never a natural tendency until near the close of the second period, not then in a majority of cases.

During the third and fourth periods, this tendency is a natural one, more so in the last than during any other period.

As a general thing when thickening of cement commences in normal conditions, a yellowing of cement manifests itself, sometimes preceeding hypertrophy of cement.

The cemental thickening nearly always begins at apex of fang, and travels upwards with generally a regular taper, sometimes ending abruptly, more frequently where there is looseness of teeth and alveolar absorption.

In many cases there is a bulbous enlargement at end of fang extending not far up.

In some instances after this process has made considerable progress, there occurs necrosis just at the end of fang of greater or less extent stopping at the dentine and leaving a sharp point. This never takes places until after death of pulp, and must be regarded as a vital process, the erosion of cement a chemical one, depending always on acid action at point of necrosis, the tooth in fact is dead all except the cement whenever the pulp is destroyed. This condition may happen where there is no hypertrophy of cement.

The cement as well as enamel becomes yellow, as old age advances, the change in dentine being more structural than in either cement or enamel.

The yellowing of teeth never occurs early in life to any great extent, this is most usually the effect of time.

Hypertrophied cement occurs sometimes as a pathological condition before a tooth is six years old.

When hypertrophied cement occurs in young subjects the process is a rapid one much more so than in advancing age.

As the hypertrophy progresses, there must necessarily be a corresponding absorption to make room for the enlarged fang.

All processes of decay and reproduction are more active in youth than in old age, as there is greater activity of forces both chemical and vital in the young than in the aged. In the process of cementosis, there is going on in the alveolus a double process, one of building on to fang, the other removal of alveolar tissue, one a chemical, the other a vital or nutritive process. The cemento alveolar membrane must carry on a double process during this change, one side generating an acid that carries away the socket, while the other side deposits bone material on the fang.

Hyperdentosis externas never can occur, from the fact that the dentine is always covered up, this can only take place on the inner walls which is the order of dental development, and is a continuation of the normal primary process.

The enamel is the only fixed and unchangeable dental tissue, owing to its extreme hardness and mineral preponderance. Even this tissue undergoes changes to a certain extent of nutrition, disintegration and alternate loss of vitality in extreme age, or where connection with dentine is cut off by decay of dentine underneath.

The idea entertained by many that the enamel is dead matter in youth or early life, seems to me not well founded and contrary to physiological laws.

Calculus, such as tartar around teeth and stone in the bladder, is dead matter, and in nowise has any vital connection with, nor belongs to the system, they are deleterious accumulations and disturbing agencies.

After middle life, if not before, a closing up of tubuli and pulp canal by slow degrees commences, and travels on uninteruptedly so long as life lasts, commencing earlier and progressing faster in some than in other cases, indicating premature old age, depending upon mode of living, occupation, constitutional idiosyncrasies and hereditary peculiarities, and usually occur where there have been many teeth removed; excessive use of tobacco may bring on this condition earlier, even in good constitutions.

Precisely how this process of acclusion or secondary growth takes place cannot be so readily accounted for.

Whether or not there is improvised layers of colloid cells which ossify as fast as improvised. As in other bones, this internal change in teeth is not so readily determined and needs farther observation to determine this point. From the slowness of the process the cell idea would seem problematical.

The closing up of the minute bone cells in advanced age depends on the same law, the process being the same as that of the teeth, and unlike any reparatory process of bone after traumatic injury. On the contrary, it is a degenerative process tending to the mineral kingdom.

The closing up of dentinal tubes and bone cells may be regarded as a presage of decay and a precursor of disolution, a yielding up of vital to chemical laws and forces, a broken balance in the wheels of life, a spent spring and falling weight, and man becomes fossil throughout the hard tissues, and death is the result of displacement of life's forces. The above ideas are suggestive of proof.

Knowing those facts we ought at least to use all measures against premature old age or decay in any power. It should be the duty of scientific men to make investigations in this direction and give rules in directing so as to favor early bone development during growth, and retard it afterwards, or during maturity and decline, which is possible and even probable. By following out the plan in relation to diet given by myself in a paper entitled Physiology and Chemistry of Old Age, read before the American Medical Association at New Orleans in May 1869, and published in the New Orleans Medical Jounal for 1870. I think, if commenced in time, much could be accomplished in relation to longevity. This article was copied into the Dental Register, May No., 1870.

These ideas are new, and perhaps new to all and may not meet with much favor at first, like all other new hypotheses. Still the plan proposed can do no harm, if no good, and may be worthy of candid consideration and trial.

I have been making examinations microscopically and otherwise, of teeth and alveolars of persons ranging from sixty to seventy years of age. I find at the apertures a difference in the degree of closure in similar teeth of different individuals where wear and tear has been about equal, which may be accounted for by constitutional tendencies; the temperaments, bodily and mental habits, have great influence on the hard tisues.

Persons of best constitutions as a rule suffer least; the bones being the best guide, as they are influenced less by local causes than the teeth.

In some specimens of very aged persons I notice that the lacunæ become more rounded, shorter in one direction, sometimes larger in the other, some of the lacunæ or bone cells are much smaller than in middle age.

The canaliculi are more indistinct, the anastomosing not well defined, the length not so great, their size smaller and communication from lacunæ to lacunæ to a great extent cut off, and bone nutrition in consequence cut off; also the life of the bone ebbs, the bones become brittle, cool, harder, heavier, less vital, repairs from injuries slower and uncertain. This condition of the bones is felt by the flesh and fluids throughout the entire body. In some bones and regions of the same bone, there may be some slight difference in structural change as in teeth; it is often noticeable in the same person.

In what precise manner these structural changes in the microscopic anatomy are brought about is of difficult solution; the fact of the mineral preponderance is easily determined from data already stated. The histology of these secondary osseous changes are more difficult of comprehension than primary bone histology, more especially in the microscopic structures.

The microscope reveals the structures only, and our conclusions in relation to cause and effect must be based upon comparative analysis, that is, by comparing specimens under the microscope, of bones and teeth of different stages of life and draw our deductions therefrom, which has been given in this paper, so far as my own observations are concerned.

These observations have been made from teeth and bones of persons from six years old to eighty years and upwards, and all intermediate periods.

In some cases the bones and teeth of forty and sixty years show but slight difference, and we naturally conclude that the chances of the individual of sixty years for a given term of years are about equal to the one of forty.

In other words one person at forty years may be as old as the one at sixty, owing to constitutional tendencies.

Jenkins, who died in London many years ago at one hundred and sixty-nine years of age, was vigorous to the end of his life, and at one hundred and fifty years old was as young as ordinary men of good sound constitutions at fifty years, and I have no doubt about that man having good sound teeth up to the last, and if he ever lost any at all it must have been from accident; tartar, even, could have no abiding place in his mouth. His mode of living would be of interest to science.

The above report is a special instead of a general one, though general ideas and facts may be deducted therefrom.

Any special subject relating to anatomy, physiology or histology, or connected with the whole, and any paper of this kind relating to the whole, must necessarily be long if in any way complete or comprehensive. In consequence I selected a special subject which I think of sufficient import if properly studied. The use of the microscope in scientific organic analysis is at this day too well understood to require comment to any extent. Without the aid of this instrument little could be known of minute structures, or histological knowledge. In fact histology is that branch of physical science which is the result of microscopic revelations, and which as a special branch is of but recent origin, still in its infancy. Anatomy now is divided into Descriptive, Pathological, Surgical and Histological, all intimately blended and connected, and to fully understand any one branch, all the others must be studied and comprehended. I am fully aware, that, as a general thing that even in our colleges, these branches are not studied as they should be in order to send out competent students to practice a special profession, which is intimately connected with more general subjects than is generally taught. Even among the profession of long years of practical experience, how many are there who have taken the pains to fully read upon all those branches, without which knowledge and full competency cannot be claimed. They certainly are not over numerous. These branches only furnish the basis of other studies connected with our specialty.

ARTICLE II.

Dental Therapeutics.

BY F. Y. CLARK, M. D., D. D. S., SAVANNAH, GEO.

The cause of caries of the teeth as far back as we can g has been a mooted question. It is called Decay, Gangren Mortification, Inflammation, &c., and is attributed by variou authors to as many causes.

In this report we wish to call your attention to what w will designate external and internal caries. The one hereditary and constitutional, and caused by hereditary c constitutional disease. The other is external and local, an caused by external or local agents.

Had man never violated the natural and fixed laws God, we believe he would never have been afflicted wit disease. No natural law can be violated without a penalt Thus it has been from the entrance of our fore-parents in the garden of Eden, and will be to the end of time.

If any one member of our body suffers from disease a other members and parts sympathize. The teeth are organized that they depend on the general system for nou ishment, health, and life. Although different in structur and more isolated than the hands and feet, they are su plied with the same kind of nerves, veins and arteries, an these little aqueducts convey the supply as given to the at the fountain head. It will be seen then that if this sy tem is diseased that these aqueducts must carry these di eased fluids to the teeth and that they must necessari partake of the malady. Thus we frequently see, and a called on to treat scrofulitic, syphilitic, consumptive, an dyspeptic teeth, for these and many other diseases are well known by the well informed dentist, and as early d tected on the teeth, as they are by the physician in the sy tem. Many of these diseases, have remote origin, an it is thus "the sins of the parents are visited upon th children even to the third and fourth generation." For this it will be readily seen that it is sometimes no easy matter to answer the oft put question, "why is it my teeth decay, I am continually having them fixed yet they are giving away?" In many cases we might answer, "fixing without constitutional treatment will not save your teeth," and to go a little farther if we wished to get at the cause we would have to pry into family secrets, and find the vice commencing with some great grand-parent.

In hereditary disease of the teeth of this nature the best that the dentist can do is to act in concert with the family physician, for it is to him that the treatment more especially belongs. Perhaps if there was some power to regulate the marriage rite, and those competent to judge, say who should and who should not marry, then there might be some hope of freeing our race of these diseases, but as this is out of the question our treatment cannot be in many cases more than paliative. If the mouth and teeth are kept in a good condition by the dentist, the physician's treatment will prove much more successful. In the use of acids in the treatment of nervous, hereditary, or constitutional complaints physicians are too careless, for many preparations used combine with the lime or fibre of the teeth and do irreparable mischief. In the use of such agents it is always best to act in concert with the dentist, for he knowing the nature of the teeth and what agents will have an injurious effect upon them can better advise the manner of administering such medicines. As a general rule, acids should be taken through a glass tube, straw, or quill, and the mouth rinsed with an alkaline solution immediately after.

Another cause of caries or defective teeth arises from the unnatural habits and life of mothers and nurses. How is it possible for a mother to bear a healthy offspring when the shoes on her feet oblige her to stand and walk in a stooped position known as the Grecian bend. This with tight ligatures about the waist and other parts of the body, impeding circulation, and stimulating instead of nutritious diet does much towards imperfect dentition and faulty struc-

ture of the teeth, for it is well known that whatever is wron
with the mother injures the child. Again the nurse use
the most stimulating food and drink and if the child pa
takes of anything besides the milk thus poisoned it is of th
same nature. Is it then any wonder that these bowel com
plaints should be so common and fatal among our America
children? We think if physicians would try and mak
their patients understand this better, that Bateman's drop
Paragoric, and the various Soothing Syrups would not b
in such demand, and mortality among our children durin
the period of teething would not be so great.

Again, if the existing code of raising children is carrie
out; if fashionable dress is substitued, for the free and eas
robe; if wheeled about the streets in fashionable hand ca
riages with their little hands and feet pinioned as if in stock
instead of the natural out-door rough and tumble romp;
the natural taste is bribed and an artificial one is made t
take its place; if highly seasoned food and acids are use
along with hot and cold fluids above and below the tempe
ature of the blood; if this along with the usual drugging
carried out then we have a state of things little intended b
nature and generally beyond our skill, "for nature once r
sisted in his course breeds frightful things."

Obstructed dentition, owing partially to the untimel
loss of the deciduous teeth. The undue erupting of a toot
here and there with no adjacent members to confine
within due limit will ere long create irregularity, a co
tracted arch, and early decay. It is generally about th
time that the fond parent brings the child to the denti
believing that everything can be righted in a few minut
and when told that the four molars are permanent tee
and beyond saving, and that the correcting of the irreg
larity and filling other teeth will involve weeks and fif
or a hundred dollars, they are astonished and exclaim, the
had no idea these molars were permanent or that the tee
ineeded anything that would take more than a few minut

When the teeth of children are wanting in bone stru ture, phosphate of lime and other prescriptions have been by many prescribed. We have little faith in these things as a medium, but as a food with the mother and child unlimited confidence.

We might, if we would, learn many good lessons from the animal creation in this respect. They never fail to rear their young because their bodies are not distorted by fashion, and they in their natural state live on the food intended. Their instincts in many ways serves them better than our reason serves us.

Before dismissing this part of our report we would request the consideration of the profession to the great importance of saving deciduous teeth until nature gives indication that their work has been accomplished. We feel that too little attention has been paid to this subject. As a general rule we consider the retention of these teeth until the allotted time,necessary to the securing of good order and regularity in their successors. We would therefore, strongly recommend their filling whenever decayed. As the object is to retain these teeth but for a short time, we think amalgam or oxychloride zinc will answer better than any other material, for in many cases it would be impossible to use anything else. If amalgam is preferred we would recommend that of Dr. Arrington's, as we find it better prepared for use and freer of objections than any that we have ever used.

External or local decay of the teeth is that which takes place from external or local causes. We have shown that owing to constitutional and hereditary disease, the teeth may be faulty in structure and are therefore more easily acted upon by external or local agents, but what these agents are and how they decompose so dense a structure as the enamel is not positively understood. Animals living on their natural diet are never subject to caries of the teeth; but domesticate them and feed them on a mixed and hot diet and their teeth become defective. This is illustrated in our western distilleries where they fatten hogs on the refuse which is a kind of hot mush. When once commenced, this must kept up until packed in many instances with Trichin Spiralis for a distant market. For in a short time owing t the hot food and want of use, their teeth become so defective that if turned out into the most luxuriant corn or pea fields they would die of starvation on account of their no being able to masticate their food.

Again take the peasantry of Scotland, Ireland, Russia Turkey, and many other countries, where they are, throug necessity, compelled to live on a cold and rough diet, an we find their teeth almost free of caries. The negroes o our large plantations before the war were comparativel free of caries, while the cooks and kitchen hands almost i every instance had bad teeth. From the foregoing we thin we may safely assert, that the great cause of caries is wha is known as chemical action. This is produced by hot foo and other agents mixing with a vitiated saliva, forming b fermentation or some other process new agents which ar sufficiently corrosive to penetrate the enamel. These ne agents, acids, or whatever else they may be, have peculia ways and places of attack. We do not remember of eve seeing any inferior incisor attacked on the lingual surface and but in a few cases have we ever seen an inferior mola cuspid or bicuspid decayed on this surface. Now and then w see the superior molars attacked but generally by fissure extending from the posterior coronal surface. The superior incisors are frequently defective on the palatine surfac owing mostly to their formation. The most frequent localit of caries is on the coronal surfaces of the molars and bicuspids. The next in order are the approximal surfaces, the the buccal. From this we would argue that owing to th continued brushing of the tongue and the naturally smoot surface of the lingual sides that corrosive agents secure n foothold or place of attack, consequently caries cannot tak place. On the coronal surfaces the case is very different In all the molar and bicuspid teeth there are little pits an fissures where the enamel is thin affording a place for deposit or a kind of minute chemical laboratory, and withi these little laboratories the agents of destruction are generated. We have frequently noticed after extracting these teeth with deep pits and fissures, a kind of yellow substance neither mucus or tartar deeply bedded within these places, what this has to do with caries we cannot positively assert, but that it is a generated deposit and that it is of a corrosive character there can be no doubt. This is also generally found on the approximal surfaces whenever they are so situated as to afford lodging for this matter. Again on these surfaces where the teeth are crowded or close together the little abrasion produced in mastication gives a kind of roughness and fine field of action. The buccal surfaces near the margin of the gum are now and then the seat of caries, and wherever such is the case we find some unevenness, or the gum so situated as to assist in lodging the destructive agents. From the foregoing facts we learn then that caries in order to take place must have a foot-hold, some uneven and unmolested surfaces or little pits or fissures from which to operate. This being the case we can safely say whatever will remove this unevenness or the deposits from these pits or rough surfaces will go a great way towards prevention.

As we said before, the lingual and palatine surfaces rarely ever decay because they are smooth, free, and constantly brushed by the tongue. This teaches us that if it were possible to place the other parts of the teeth more liable to decay in a similar condition, we would do much towards prevention of caries. Dr. Arthur of Baltimore has taken a heroic step in this direction. He proposes to file between all the teeth when crowded so as to free their sides of chemical action. This at first may to many sound startling and strange but to the experienced operator it is much more plausible. This filing between means a great deal. It means leaving a nice shoulder, removing every file scratch and burnishing over the filed surface, giving it as smooth and resisting a surface as glass, and at a charge of at least five dollars for every separation. With Dr. Arthur or an experienced operator, we commend this as a safe practice but with the inexperienced or careless operator a very dangerous one. Where teeth are predisposed to decay between in young person's mouths, we are in the habit of extracting one on each side upper and lower. This of course as a general thing should not be done until all the permanent teeth except the dentes-sapientiæ are erupted, or we will have ere long a contracted arch. In the majority of cases where this is necessary, the neighboring teeth on the approximal surfaces are more or less defective and have to be filed and filled, and this filing and filling between others with extracting gives free circulation of the fluids and access to the brush. We think in many cases of this kind we might safely file between all the other unaffected teeth leaving nice polished shoulders, and by thus giving every tooth a little space they would not encroach on each other as is too often the case when one or two spaces are made and the others crowded. Again we would have free surfaces, and the brush with the tongue would keep them so. Approximal decay is by far more difficult to deal with effectually than any other, and we should hail with joy any new theory for preventing its ravages. The tongue in more senses than one teaches us what to do. The thorough use of the brush if timely commenced and persevered in will do for the other surfaces what the tongue does for the lingual and palatine. We find among our patients that there is not one young person in ten who knows how much or often to use the brush, therefore we are in the habit on completing other operations of requesting them to bring their brush If we find this is not what it should be, we instruct what kind to use, and then make them go to work with a watch before their eyes and brush thoroughly for about five minutes, and in many cases if they do not do it energetically we do it for them. This in the presence of a parent gives a lesson that is not easily forgotten, simply requesting young patients to brush their teeth or parents to have it done amounts to nothing, it must be shown or performed so as not to be forgotten.

The idea of wearing so dense a structure as the enamel by brushing, is almost too absurd to be alluded to; and we wonder how Tomes in his work ever advanced such an idea. A few simple experiments on a lathe will convince any one that teeth are never worn by brushing.

When the teeth can be kept perfectly clean without a powder we think it best not to use any. As a general thing the most good derived from powders is the inducement to use the brush for many persons could hardly be induced to use a brush without some kind of powder with a high sounding name, and if by brushing they keep their teeth and gums clean and healthy they are too apt to give the powder the praise when in truth it belongs to the brush.

If the theory of acid generation by chemical decomposition is correct, then it would be reasonable to suppose that he action of this acid on the teeth, to a great extent, might be prevented by an alkaline lotion or dentifrice. The use of this when there is acidity of the saliva we would strongly recommend. A dentifrice composed mostly of precipitated chalk with a little carbonate of soda, or one-fourth of a drachm of carbonate of soda to a glass of water, in brushing, would neutralize the acid. We might add to this the frequent rinsing of the mouth with some such lotion as the above.

As to the true nature of carious matter, we feel obliged to report that comparatively little is known. Microscopy and chemistry have of late been too much engrossed in developing new features in normal tooth structure, to give this subject the attention that its importance demands. Without a correct knowledge of the destructive elements contained in carious dentine, feel that we in its treatment we are like a ship without a compass. Will not some one of our able microscopists and chemists, take this in hand and give us a full and reliable account of the agents at work in this substance? During the last few months we have placed a very fine microscope on our instrument stand, so that we can without the waste of but a few minutes, examine the saliva and to some extent the layers of carious dentine taken from different mouths. This little investigation has sprung many queries, which we cannot positively answer. What is carious dentine? How does it differ from sound tooth structure? Is it the same when detached from as when connected with sound dentine? Will a layer when taken from a tooth and placed under a filling act on the living substance the same as when allowed to remain partially connected with the living? Why are we so particular in the removal of every mite of decay from a cavity before filling? You say because if the minutest mite is left, in the course of time it will increase and surround the filling. Would a mite detached from sound dentine, or any less unobjectionable foreign substance do this? You answer, no. What contagious agent then is there in this mite of decay to do this? How does the same agent produce all these different shades of decay; the black, the white, the yellow, and so on? We are told acetic fermentation, and acids combining with the lime of the tooth form new agents, but what these agents are or how they act on the tooth structure, as they do, microscopy or chemistry, as yet, has not informed us. We would be pleased to answer some of these queries, but as our investigations have not been sufficient to enable us to do so in a positive manner, we think it best to leave the task for some one more competent, believing that it will not be long before we have a better knowledge of the agents contained in carious tooth structure. While we believe in the theory of chemical decomposition by fermentation, yet there are several species of caries, with which we think this has nothing to do. Take for instance, that kind which is called spontaneous abrasion, known by those deep polished groves close to the margin of the gum. These groves are smooth, white, and apparently free of all carious substance, as much so as the surface of the enamel. Yet how rapidly and surely do they wear away unless checked by filling.

In examining the saliva in mouths where we find this class of teeth, we have seen little things which we think are parasites under the microscope. Around the body they look to be about fifty times less than an ordinary sized hair They are large towards the head and of various sizes and shapes, but of the same color. We have not been able to discover them only in certain mouths, and mostly we believe in dyspeptics. The simplest way to see these and innumerable other objects, of which we have no mention, is to take two or three little object glasses, such as are used for examining objects with the microscope, and run the edge of one after the other over the tongue lightly scraping it, thus you have three preparations, giving you in different stages of formation and action all the elements of saliva, and which, when properly examined under the microscope, are little worlds of moving and animated matter. The matter or saliva thus collected from the tongue should be thinly and evenly spread over the surface of the glass to be seen correctly.

In the filling of teeth when the removal of every layer of affected dentine would involve the exposure of the pulp, and where it is thought best to leave a layer, as a capping to the nerve, as this affected dentine is said to contain a corrosive acid, we would recommend the swabbing out of such cavities with a strong solution of carbonate of soda, and then carbolic acid. This treatment we know from experience will be found of great advantage. The alkali neutralizes the acid, and the carbolic acid being a powerful disinfectant destroys the contagious action of other agents. There may seem to some a contradiction here in the so-called carbolic acid, but the trouble is in the name only. Why it is called an acid we do not understand, for it deserves no such term. It is more properly an alkali and its action is more of that nature. We may as well call creosote an acid, for there is little or no difference; one is made from coal, the other from wood; one will crystalize, while the other will not; one is a little stronger in its action than the other, but the effects of both are the same. We might by the same course of reason call molasses an alkali and sugar an acid.

We believe the best protection or capping that can be given the pulp is the one supplied by nature, provided we can neutralize it and allow it to remain with impunity to other parts. This we think can be done, provided we know, as we said before, how to contend with the destructive agents contained therein. On the strength of this belief wherever we suspect the exposure of the nerve, we remove everything around the margin of the cavity, and then reduce the affected part to a state of inactivity. Of course not being positive as to the agents we have to contend with, we are not positive as to the correctness of treatment, all we have to guide us is experience and succees in the course adopted.

We were somewhat influenced towards this course, by a criticism from Dr. Flagg on Dr. Arthur's advocating a similar practice. This criticism went on to say as the affected dentine contained a corrosive acid, the practice of using it as a natural capping or protection to the nerve, would not do. Now this to us was instructive, and led us to the above treatment of the dentine, so as to neutralize the acid and other destructive agents.

As to the treatment of pulps we have little to report that was not embraced in our essay on this subject at our last meeting. Considerable attention is now directed to the use of Oxy. Chloride. The action of this on an exposed pulp is peculiar and differs from all other materials. The practice with this material is to flow it over the exposed nerve, and as it hardens, fill and finish. This filling is then allowed to remain several days or weeks, and then about two thirds is removed and replaced by gold. It is contended that in most of cases ossific deposit takes place over the pulp thus treated. We think there are a few cases where such is the case, but in a great majority it does not. In quite a number of cases where we removed these fillings, not through necessity, but merely through curiosity, we found the pulps apparently in a bad condition and felt at a loss to understand how it was possible for them to remain so without trouble. Per haps this is the most peculiar property of this material excepting that of relieving pain after producing it.

In a few other cases where the teeth were filled similar to the ones just alluded to, and were doing good service, they looked well and gave no trouble, and we found on removing the filling the pulp dried up and apparently no odor. One of the most peculiar cases that has come under our observation was a first sup. molar in the mouth of Dr. Allen, filled by Dr. Ford of Atlanta. This tooth had that peculiar positive shade that indicates devitalization, but on removing the filling we found no sign of pus or odor, although the nerve had shrank away from the floor of the pulp cavity, and to all appearances was gone; on excavating the fangs, about midway we found considerable sensitiveness, similar to that which we meet with in that dryed condition of the pulp where the least irritation gives trouble. What was most peculiar in this case was the devitalized shade of the tooth, indicating absolute disintegration of nerve fibrils and absorption of matter by the tubuli. This tooth, although the pulp was nearly if not quite dead, was not in the condition we expected to find it and perhaps would not occasion trouble. It was well treated apparently, but we were influenced to refill on account of the shade. Much success is claimed in the treatment of pulps by this new material, but sufficient time has not elapsed since its use to justify this claim. A few years will test its merits, and until then, although we are using it and so far can say more in its favor than against it, yet we are unwilling as yet to applaud or condemn.

About 1852, or 1853, Dr. S. P. Hullihen of Wheeling, Va., introduced a new method of treating exposed nerves which he called Risodontrypy, and which a year or two after had many advocates and created considerable ado with old theories. This operation consisted in perforating the nerve midway between the apex and neck by boring a little hole, ordinary needle-size, with a small needle-like drill and spear point. The slightest indication of wounding the nerve without cutting it was the desired result. This slight wound relieved the engorgement by removing a drop or two of blood, causing it to contract from the exposed point and thus allowing filling without pain and generally without trouble afterwards. It was claimed by the advocates of this operation, that ossific deposits took place in the hole made into the fang and also over the exposed nerve. Be this as it may, whether it was owing to the delicacy of the operation or impracticability, it has under its original name, "Risodontrypy," disappeared from practice, but is somewhat revived under another head—we allude to the practice of shaving off a small portion of the pulp when exposed, as introduced by Dr. Allport of Chicago. This of course relieves engorgement of capillary vessels causing the nerve to contract and allowing the filling of the tooth without pain, or much fear of trouble for some time as in risodontrypy. The principle in both is the same, and therefore we cannot claim the latter practice as new. Like Risodontrypy, owing to its delicacy and intricacy, it no doubt in many instances might be successful in the hands of Dr. Allport and a few others, but never in general practice.

Before closing this report, we would call your attention to the great evil that is being inflicted on humanity by the wholesale extracting of teeth as practiced mostly by extracting companies. It is the glory of the men connected with these organizations to keep a record in which every one after leaving some member, is requested to write his name, and some go as far as to form the teeth thus extracted into pyramids for exhibition; on investigation of some of these pyramids, it has been ascertained that at least two out of every three teeth thus extracted might have been saved. This gives good reason for asserting that nitrous oxide has done more evil than good, for in places where this is used many persons would otherwise think of saving their teeth instead of having them extracted. Again, as the men connected with these organizations, as a general thing, know nothing about what teeth might be saved, they extract with a clear conscience, believing they are doing a service. In country towns and other places where these agents are used the case is not much different, for they are used more to trap in rubber work, than for the little pay they secure for the mere operation of extracting. It is the general custom with many of this class of persons calling themselves dentists, to have a physician present in the use of the anæsthetic, thus acknowledging their inability and want of confidence in the agent used.

Another inducement for this promiscuous extracting is the use of rubber, for persons are informed they can have new teeth inserted for a few dollars, and they in many cases believing a tooth is a tooth, that one is as good as another, do not hesitate to have their teeth removed, to be regretted when too late. But if the evil ended with the extraction, it would not be so bad, but is handed down from parent to child, for like produces like. This holds good with all animal creation, as well as our own species. The physiognomy of the Germans, the French, the English and the Americans all proclaim them as such. If parents have peculiar marked features or teeth, their children generally inherit the same, and if these children intermarry with those having similar marks or defects, these marks or diseases become hereditary; and we may ere long, if this wholesale extracting is persevered in, not only see children without teeth but persons of advanced age that never had any. We have in many places instances of this already, and numerous cases of contracted and imperfect arches, which can be explained on no other principle. This being the case we must say the various anæsthetics and the use of rubber, have proven a greater curse than a blessing, for they have been the means of sacrificing millions of teeth which we know could have been saved.

ARTICLE III.

American Dental Association.

By C. Stoddard Smith, D. D. S.

The eleventh annual session of the American Dental Association was held in the Methodist Church, at Greenbrier, White Sulphur Springs, West Va., commencing on Tuesday, August 1st, 1871.

Soon after 10 o'clock the meeting was called to order by the President, Dr. W. H. Morgan, of Nashville, Tenn.

The roll of qualified members was called, and the reading of the minutes of the preceding meeting, was, on motion of Dr. G. H. Cushing, dispensed with.

The reports of standing committees were then called for, but, on motion of Dr. Crouse, the regular order was suspended in order to attend to some preliminary business. The hours of meeting were fixed at 10 A.M. and 3.30 P.M.

Inquiry being made in reference to clinics, the Committee of Arrangements reported that it would be difficult to hold clinics, as there were no operating chairs in the place.

Dr. Taft thought it not best to occupy valuable time in clinics. There will be none too much time to hear and consider the reports and other important topics, which ought long since to have been considered. The association could not afford to fritter away its time in manipulative exercises, which can be carried on in local societies. The influences of this body should extend all over the country, and further if possible. No clinics or exhibitions should be allowed during the hours for meeting.

It was finally decided that the clinics should be held from 8 to 10 A. M. The President gave notice that he should call to order punctually.

The regular order was then returned to, viz., the reading and consideration of reports of standing committees in consecutive order.

Dr. Cushing moved that Drs. Salmon and Morrison be, at their own request, discharged from service on the Committee on Instruments and Appliances, both having appliances of their own.

Carried.

Adjourned.

First Day—*Afternoon Session.*

After reading of the minutes, the Committee on Credentials asked for further time, which was granted. A partial report was, however, made.

The Committee on Dental Physiology was then called, and Prof. Judd, Chairman, submitted a report, of which the following is the substance:

Physiology is that branch of learning which treats of the phenemena of life. We say phenomena, because we know little of the essence of life; all speculations being too vague for our present purpose. Though physiology is the science of life, we most frequently mean by the word to include only function, without touching the question of life in the abstract. If, in this sense, we confine ourselves to a dental physiology, we have only to consider what is known in reference to the functions of the dental organs, which alone would present many fields for investigation. Whoever attempts to elucidate new principles in this field must first make himself master of the physiological literature of the day, or waste his time in experimenting on predetermined facts. If we study successfully the laws of life, we should direct attention to those conditions where its essental phenomena are exhibited in their simplest form, thus separating surroundings which might obstruct our view. Should we make our observations on the highest organized structures alone, we might conclude that an intelligent activity was an essential element of life; but if we go to the other end of the scale, we shall not make such a mistake. Life in the monad is as unmistakable as in the man. Nor is the vegetable world more simple. The veriest point of protoplasm exhibits all the essential characteristics of living beings.

Matter in its relation to life may be considered in four different forms. Heretofore, only three have been recognized, living, non-living, and dead, but we include one more viz: viable, and the category is complete. By viable matter we mean that which possesses only the potentialities of life; by living, that which possesses the activities; by non-living, that which is endowed with neither the activities nor potentialities of life; and by dead, that which has once lived but has ceased to manifest the activities, and no longer possesses the potentialities. There is a limit to our investigations which it were folly for man to attempt to pass While the activities of life result from secondary causes which may, and probably will, be understood, the philosophy of the potentialities is no more to be found out by scientists than that of chemical affinities, which would, if understood, involve a complete comprehension of Omnipotence The potentiality of viable matter is vital, of non-viable,—as cohesion,—is non-vital. What answer can we give t the question, why does a cell possess the power of transforming the vital forces? and how is it that in their chang common affinities are kept at bay? None, but to say tha organic matter is the appointed medium of these changes Such questions are beyond the scope of human intellect When it is understood that different results obtained by th action of the same substances on living or non-living matte are determined by the different potentialities, the controversy as to the identity of forces will cease. We have n need to press into service unknown forces to account for th growth and development of a cell. The power of divisio is manifested when the mass—of cells—reaches a certai size. This power is the only essential process in the multiplication of living beings. But, although chemical investigations have led to astonishing results, nothing like a approach to the solution of the grand mystery of life ha been achieved. Though man has read the storied pages o the world's primeval history, has discovered the laws of th evolution of central suns and planetary systems; though h has measured the depths of space and weighed its mighty orbs and determined the elements of which they are composed; though he has tamed the lightnings and made them his willing messengers, and thus anihilated time and space; yet, though every succeeding year may add to his knowledge, still the production of the simplest cell, with its powers of assimulation and division, will still be as far beyond his power as it is at present.

A word in relation to the innovation we have made by considering matter in four conditions may make evident the necessity for this new category. A seed entombed for thirty centuries with Egyptian mummies is still capable of germination; we state that during this period it has been *viable;* we do not assert that it is either dead or living, but that it is capable of life under favorable circumstances. But like dead matter, it must once have lived and ceased to exhibit the activities of life. We have, therefore, assigned it a special place in our category. The existence of a vital force, distinct from the physical, has never been demonstrated. The apparent necessity for such a distinction will disappear if we consider that different modes of motion are not different forces, but different manifestations of one force. Connect a piece of soft iron with the wires of a battery, the iron becomes a powerful magnet, though the connection made with other substances will produce no such results. The difference is owing to the different potentialities of the iron and the other substances. We have stated that the power of division and that of assimulation are the only distinct processes in the multiplication of beings. Though different methods of multiplication have been designated, as by division, by endogeneous growth, by a process of budding, or the pinching-off process, as it is termed, yet, if we observe these processes clearly, we shall find that they are essentially the same, simply divisions of the germinal mass. We do not refer to the antiquated doctrine of the formation of cells in a formative fluid. We are interested only in living tissues. We have confined ourselves to these few points, believing that the light shed upon them recently by the world's great luminaries warrants a modification of previous views.

Other papers on this subject being called for, Dr. Taft said that though it was the custom in local societies to read voluntary papers on any subject, yet such was not the case in this body.

Discussion on this subject being in order,

Dr. Atkinson said, regretting that he was not present when the first part of that report was read, he congratulated this body that a subject of this importance can be considered without that humdrum routinism which has borne down the medical profession. If he were disposed to speak with the mind of a critic, he might say that this is not a report on physiology but upon biology, which is the basis of life. We are inspirationally after truth. The present difficulty is the everlasting stickling for terms. He desired to get at the concept of the speaker, whether he was moved by his own inspiration or that of others. Matter has here been discussed in four forms. This is a new doctrine, but none the less truthful. The physicist must invade the field of consciousness, and know that he *can* think before he will know how to think. We have assumed a miserable duality instead of a glorious unity; have divided matter and spirit groping our way in darkness and despair, crying out that we shall never be able to know the truth. Knowing the beginnings, we will know the relations of things. You talk of a primal cell, and you don't know what a cell is. It ought to be spelled s-e-ll. Physiology means function, and that means organ. There is nothing that is non-living Death itself is nothing but change. Everything comes under the law of homogeneous heterogenity and heterogeneous homogenity that pervades the universe. Going back to the beginning, I do not want to call these germs *cells*, but bodies. There are two ways of cognizing things,—by the senses and by the sentiency. All that comes in at the senses is physical; that which is cognized by the intellect—sentiency

—is immaterial. We come here to work on principles, on which our practice is based.

Dr. Taft offered a resolution inviting certain gentlemen, dentists and others, not members, to participate in the discussions, which, after considerable discussion was adopted.

Dr. Howe, of Cincinnati, said attention has been called to the confusion of terms in scientific discussions. Facts and truths are used as synonomous terms. Fact, however, is material; truth is revealed. There is an opposite to truth, but none to fact. Truth is found in revelation, and scientists will never be able to shake God's truth. Fact is matter in motion,—put in motion by spirit.

Prof. Judd desired to make an explanation. Dr. Atkinson believes that there is no essential difference between the crystal and the man, so far as vitality is concerned. I claim that vital actions are exhibited by living beings, and we call them vital because exhibited by living beings alone. When we say matter is dead, it is the language we have agreed to use when it fails to exhibit the phenomena of life. These are due to something which operates through dead matter. To understand this is beyond our comprehension. If Dr. Atkinson says that in the future we shall understand it, he can bring nothing forward to prove it. The word body I consider better than cell; but this word has been engrafted into our literature. Men know nothing about the growth of language; words apparently essential to the Latin tongue, and used by Cicero himself, have died out. Many words so change their signification as to mean exactly the opposite of what they once did. The French Academy attempted once to change certain words and substitute others, but found it utterly useless.

Dr. Atkinson. All that has been said has but proved true the inability of words to convey concepts. I will discuss philology in its proper place. I want to get men out of the place where I once was. Physiology is function,—that is, work of a body,—no matter whether we include it in the skin of a word or not. The concept of a cell boggles physiologists. Here is this great skin of ours, with its pabulum coursing within it; that is a great cell itself. The feeding,—that is physiology. Until the microscope was discovered we had not the concept of life. Hitherto shalt thou come and no further was written over the doors of physiology; but the glorious light of the Father above came streaming down through constructive lenses, and multiplied our conceptive powers. Anything that conspires to support functional activity is the basis of physiological action; anything that don't do this, arrests physiological action. It either supports or kills. Will Prof. Judd tell me what "killed" means?

Dr. Judd. Loss of its potentiality.

Dr. Atkinson. What do you mean by *its?*

Prof. Judd. Matter that has not only ceased to exhibit the actualities of life, but which has lost its potentialities.

Dr. Atkinson. We might spend a whole night in discussing whether a body frozen is dead or alive. If thawed slowly it resumes its functions, but if rapidly it becomes dead.

We have not yet risen to the conception that matter must be living to be at all. When patients come into our offices we assume wisdom, and say we understand it all; but until we do understand physiology we shall never understand its its difficulties. Plasma is chaos. Physiology is the taking in of plasmodic mass that feeds the bodies. Vitality is simply manifestation. We don't know what life or death is; it is change of habitat, of ghost. The law of togetherness and apartness is the most primal concept of life. Hence a crystal belongs as legitimately to the sphere of life as the seraph that blazes before the throne. The enamel of the dentine is the only substance that cannot be reproduced. All the rest may be. I know that bone and nerves may be reproduced; this can be demonstrated to stone-fence minds. The tissues can be supplanted, as in the case of tuberculosis, where soft bodies are generated, taking the place of those by substitution. The case of Prof. Day, of Yale College, who was a pronounced consumptive at fifteen, illustrates this. He died at ninety-five, a few years since, having fallen in with a man who clearly saw that the pabulum must be supplied on which the tissues might feed. The tuberculosis became partly encysted and partly expelled, and the man recovered, when at thirty-five he was thought to be a hopeless case.

We have got to rise to a concept of the great truth that in God we live and move and have our being. Truth is revealed to us, and we must dispense it so that we may not look for things with the oblique rays that are only to be found out by the direct rays. When a thing is thus revealed we can speak with the certitude of the pillar of the throne of God. A crystal *does* think about what it is necessary to take in to perpetuate its own exisience. Here we have the key to the whole.

Prof. Judd. In relation to the whole matter, I would say that when Dr. Atkinson comes down to the facts, and I have seldom to call him to account as to facts, we do not disagree; but his inspirations and those of others lead in so many directions that I distrust them. I think there are times when a man sees things he cannot. at other times; when he can speak as he could not at others; I will concede so much to his inspirations. I am not sure that we differ at all as to the facts in physiology. But when he comes to the upper strata, then I must leave him, and he ought not to quarrel with us if we don't believe in all his inspirations.

Dr. Atkinson. When our minds and affections are married we will not quarrel. We must integrate into our lives what the great Master taught, "He that will save his life shall lose it." If there is not a divinity in physiology, it is pathology.

The Chair announced the following appointments to fill vacancies on the various committees:

Dental Physiology.—Drs. R. Huey, of Philadelphia; and J. F. Thompson, of Virginia.

Chemistry.—Drs. H. A. Smith, of Cincinnati; and Webb and McDonneld, of Pennsylvania.

Operative Dentistry.—Drs. J. Taft, Cincinnati; W. Dutch California; and C. D. Cook, New York.

Mechanical Dentistry.—Drs. W. N. Morrison, St. Louis J. R. Walker, New Orleans; and E. Floyd, North Carolina

Dental Education.—Drs. Francis, New York; Noble, o Washington; and F. Hickman, of Pennsylvania.

Histology.—Profs. Judd, and McQuillen.

Dental Therapeutics.—Drs. Atkinson, New York; J. J Birge, of California; and G. W. Keely, of Ohio.

Instruments and Appliances.—Drs. J. F. Canine, Louisville; and Walker, of New Orleans.

Prize Essays.—Drs. Crouse, Chicago; J. I. Taylor, Cincinnat; and I. A. Salmon, Boston.

Dr. Taft suggested that though these committees coul not be expected to prepare elaborate reports, yet they migh touch upon a few points, so that definite action upon the might be taken.

Adjourned.

To be continued.

ARTICLE IV.

Virginia State Dental Association.

The second annual meeting of the Virginia State Denta Association, will be held in Richmond, on the first Thursday of November. *All* members of the profession throughout the *entire* State are *earnestly* requested to attend, a business of importance requiring strict attention will b presented to the convention for its action.

GEO. F. KEESEE, Sec'y.

SELECTED ARTICLES.

ARTICLE V.

Case of Caries and Subsequent Removal of the Whole Inferior Maxilla.

By R. H. Preston, M. D., Newboro'.

Sir,—Dr. Preston, at my request, sent me the accompanying particulars of his most extraordinary case, and I should have forwarded it to you sooner had I not wished to be able to report the condition of the subject of it, at a later date. I heard from him last week, and the report is that he has continued to improve slowly but steadily from the time of the removal of the bone, and that he considers himself perfectly recovered, the only thing preventing it being the inability of the dentist to find sufficient footing for a plate of teeth on the lower jaw. This was running in the man's mind from the first; for before proceeding to remove the jaw he was particularly anxious to know how soon after its removal he would be able to have a set of artificial teeth. I need hardly say that the reply was not very encouraging.

Yours, &c.,

Octavius Yates, M. D.

Mr. L. B., aged 46, a farmer residing in the Township of Bastard, Co. of Leeds, Ont., a man of spare but temperate habits was attacked on the 18th of October, last with severe pain in the second molar tooth, right side of the lower jaw. The tooth was decayed so as to expose the nerve. Pain was severe, and the face soon began to swell until the 4th day when suppuration ensued, but instead of finding relief his symptoms became more severe; the discharge increased, also the swelling which extended along the course of the bone. He went on in this way until the 28th Oct., when I was sent for. I found him laboring nnder high constitutional excitement, pulse running 150, skin hot and dry with pus discharging freely from around the decayed tooth.

With great difficulty I succeded in opening his mout enough to extract the tooth and the one in front of it, bot being quite loose. I ordered beef tea, chicken soup, eg cream and brandy, to be given freely ; also put him on syru of iodide of iron, and gave him a wash of carbolic wat and glycerine.

On the 31st saw him again, the swelling and sorene greater and extending round the jaw ; pus was oozing fro the side of every tooth on the right side. The constitution symptoms more severe, hectic, night sweats, pulse 15 growing weaker and very drowsy. Beef tea, &c., continue brandy increased.

Nov. 3rd, saw him again ; found him much weaker, di ease extending, pus escaping from around every tooth i the whole jaw, and in large quantity ; removed more teet increased as much as possible the amount of nutriment a stimulants.

Nov. 8th, saw him again and found him apparently sin ing. The quantity of discharge was full a pint in 24 hou a thick yellow-greenish pus, feet and legs œdematous, pul weak and ranging from 130 to 150. At about this tim three weeks from the onset of the pain, besides continui the nutriment &c., I gave him a large dose of quinine, al gave him cod liver oil. For the next three weeks I sa him twice a week—he lives over twenty miles from me I should have visited him oftener—and during this time t discharge gradually became less, and he rallied in streng so that he was able to sit up for a short time every da

Nov. 28th, Dr. Addison, of Farmersville, saw him wi me, and we decided to remove all the teeth, hoping there o save the body of the bone, but soon after their remov —one was left— the gum fell from the bone. I then r moved the greater portion of the alveola, when the conditi of the body of the bone was discovered. The sloughing the bone continued to go on rapidly. I then sent for D Octavius Yates, of Kingston, who met me on the 24th De when we removed the whole bone, cutting it in the mes line and taking out first one and then the other side, and only requiring to use the handle of a scapel to separate the soft parts. No cutting was required, and only one or two teaspoonfuls of dark venous blood lost. By following with the finger, the track left by the bone, the glenoid cavity could be distincty felt, sound and free from disease. At the point of the chin a slight cartilaginous band could be felt, no doubt nature's commencing substitute for the jaw.

For some time there continued more or less œdema of the lower extremities, but it has now quite disappeared. The chin has contracted but very little while his cheeks are fuller than formerly, and although his voice is changed his articulation is perfectly distinct. His gums, or what is left of them, are gradually becoming harder, and he now eats hashes, puddings, &c., to such an extent that he weighs 15 pounds more than his usual weight before he became ill.

The bone itself, but for one sound tooth which remains, would, at first sight, hardly be recognized. The surface of the bone only here and there is preserved, while the whole interior portion seems to be lost. The bone or rather the pieces may be seen, having been added to the museum of the Royal College, Physicians and Surgeons, Kingston.

In conclusion, the question naturally arises, what was the cause of this rapid and complete destruction ? No constitutional, hereditary or acquired taint can be traced or found. No other part of the body was, or has yet, been affected. If left to itself—the supporting treatment excepted—the bone would probably have been thrown off or out, and thus furnish an ample spontaneous excision unheard of,—by me at all events—before meeting with this case.—*Canada Lancet.*

ARTICLE VI.

Cases of Cancer Treated with Cundurango.

By D. W. Bliss, M. D., of Washington, D. C.

[Professor of Urinary Pathology in the Medical Department of Georgeto College.]

My attention was first directed to this remarkable ag during a professional attendance upon Mr. Flores, the m ister from Ecquador, through whom his government h conveyed to our Secretary of State a portion of the shr together with printed statements of its successful empl ment by eminent South American physicians. Having ways conceived that a remedy would sooner or later discovered for the cure of caricinoma and tuberculosis, long the *approbia medicinæ*, I was at once interested in t direct and encouraging exposition of the Quito doct With the hope of benefitting my own patients, and effecti some good for others, I determined promptly to test merits by actual experiment, regardless of the charges a possible opposition to which I knew my honest effo would be subjected by the hypercritical and ungenerous my professional *confreres*. Fortunately, several cases of equivocal carcinoma were then under treatment. Acc tomed to the remorseless ravages of a malady for which ev the surgeon's knife afforded no adequate relief, I approach the experiment not without misgivings of success, but w the affixed purpose to render the test as complete as t limited supply of the plant in my possession would allo

Mrs. Matthews, the mother of Hon. Schuyler Colfax, h been the victim of mammary cancer for a long peri which had already assumed secondary and constitution symptoms in a marked degree. On the 29th of April la I placed her on the decoction of cundurango, and had t gratification of observing an early and decided change the better, in both the local and general conditions. O of its almost immediate effects was the relief of pain, a a free diaphoresis, characterized by an odor distinctly servable of the infusion itself. Upon the return of Mrs. Matthews to her place of residence in Indiana, I still continued to direct her treatment, and furnished the requisite supplies of medicine.

On the 9th of May, just thirteen days after the commencement of the new remedy, her husband addressed me a letter, from which I make the following extracts:

* * * * * * *

"The stony condition of the tumor has given place to softness. This morning I noticed about one-third of the surface has turned from a scarlet to a white color, and it has commenced suppurating as though the thing were dead and coming out. The whole tumor is very much flattened, the discharge is different and not near so offensive. The greatest improvement is in her complexion. From a *tallowy*, puffy-looking, and somewhat bluish skin, she is regaining her old natural look, the skin shrinking, becoming wrinkled and clear.

"I am so happy in the prospect of a cure that I feel like a new man, as though a ton of lead had been lifted from my heart. Is it not a little singular, it has not had any perceptible effect on her nervous system? Her digestion is good, and she begins to feel that she will get well."

On the fourteenth of the same month Mr. Matthews writes as follows:

"This is the seventeenth day since I commenced the use of cundurango; shall cease for a few days, and note carefully the effect. When I began the treatment, Mrs. Matthews' breast was almost as hard as a stone, about four inches in diameter, the cancer itself two inches in diameter, with raised edges, hard and scarlet-colored, bleeding profusely at the slightest touch, emitting an odor of the most sickening and disagreeable kind, discharging a brownish, cancerous, limpid fluid; the countenance bloated, tallowy-looking, with a bluish pallor of the whole face; the lips turned blue at the least exertion so that I have been very much alarmed, fearing a rapid crisis and disolution; at the same time the

tumor itself enlarged with fearful rapidity, so much so th
I could notice the growth from day to day.

Now all is changed—the countenance has resumed its o
familiar look; she moves about with great sprightliness, th
blue of the lips no longer indicating fatigue or effort. Th
granular swelling under the chin has gone; strength in
creasing; the tumor itself much flattened and decreased i
protuberance; the color changed to a white, maturatin
sore; the limpid cancerous discharge ceased, and in its pla
a healthy discharge of white matter much less offensive
the hardened glands are soft to the touch, the whole sym
toms indicating most plainly to me that the treatment ha
so far, neutralized the poison of the blood, and that anoth
short campaign with cundurango will insure a complet
cure.

On the 2d of the present month I visited Mrs. Matthew
at South Bend, and was indeed astonished at the rapi
change which had taken place. The tumor had becom
soft, the color natural, the secondary glandular deposits ha
all disappeared. The improved complexion, muscular firm
ness, and elasticity of spirits, all pointed to an early an
complete recovery.

Mrs. Handy, residing on M Street this city, was the ne
subject of experiment with the cundurango. This was
highly-typical and fearfully-advanced case of cancer uter
The grayish color, unequal, irregular elevations of the ulc
edges, the sympathetic disturbance of the bladder, the pa
oxysms of intense pain, together with the hot, dry, shri
elled, yellow surface, the wasted muscles, sunken eyes, th
small, quick, wiry pulse, revealed one of those sad case
where all hope of remedy fails.

The cundurango, in the form of decoction, was admini
tered first to Mrs. Handy on the 31st day of last month.
regular record has been kept from day to day, describin
the least change of symptoms, but I have not the space t
introduce it here. Suffice it even in this extreme case th
beneficial effects of this wonderful remedial agent have bee

most apparent. The pain has steadily declined, the diseased parts are less tumefied and sensitive, and the discharge is very slightly offensive. The cachetic appearance of this patient has much improved, and she expresses herself as feeling altogether better.

A lady of the family of Hon. Mr. Gorham, Secretary of the United States Senate, has had mammary cancer of several months' duration, and her condition was pronounced hopeless by leading Northern surgeons. I was called to see her on the 1st of June, of this year, and found cancer of the breast, with secondary deposits in the shoulder and humeral portion of the left arm, attended by extreme rigidity of the neck, and almost complete immobility of the affected limb.

A careful daily record has been preserved of this case, also, by which the most decided improvement is indicated. The mammary tumor has grown softer, and the line of skin attachment bisecting the the nipple is much less marked. The head, before stiff, is now perfectly free and movable, while the natural mobility of the disabled arm is restored, and the tissues, before hard, are now soft and natural. The general condition progresses favorably *parri passu* with the local improvement.—*New York Medical Journal.*

ARTICLE VII.

Alveolar Abscess with Necrosis of the Maxilla.

By H. L. SAGE.

October 29, 1870. Miss O. N., a young woman of Scotch and Irish parentage, bilio-lymphatic* temperament, called with the intention of having the second left superior bicuspid extracted, and replaced by an artificial substitute; also, the root of the first bicuspid.

On examination, a fistula was discovered over the root of the former; otherwise the gums presented as healthy an appearance as they usually do when thus affected, and the tooth being of good quality, firm, and not badly decayed the treatment of the abscess was advised and consented to

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*Though the bilious and lymphatic temperaments are said to be opposites yet they may exist together, one preponderating over or controlling the other.

An amalgam filling in the anterior approximal surface which had been inserted by a neighboring dentist, about fou years previously, was removed, and an opening found leading into the pulp cavity, which was empty.

The patient could not inform me, whether the pulp wa destroyed previous to the insertion of the filling, or not The trouble commenced to be *painfully* apparent, about tw years after the tooth was filled, but was not noticed prior t that time. Either the pulp was dead at the time of filling or was nearly or quite exposed.

The ultimate result, was alveolar abscess and necrosis o the maxilla.

The gums had recently swelled, but the swelling had subsided. The usual treatment was resorted to, and the absces thoroughly cauterized *once.* This was done by cleanin out the pulp canal, and introducing a hypodermic syringe loaded with a proper quantity of creosote into the root, an hermetically sealing the cavity about the point by filling i with a batter of plaster, which was allowed to harden, an then forcing the creosote through with the piston.

The medicine disappeared, but none of it came to the surface, through the fistula in the gum, as it was expected woul be the case. The inference, therefore, was that the destruction of the alveolus by the abscess was considerable.

As the patient complained of a burning sensation, it ma be, that some of the creosote found its way into the antrum

The application was made November 2d. The patien afterwards called several times.

The gums became inflamed and livid, and the tooth ver loose, and also the adjoining cuspid. There was very littl if any pain. An endeavor to reduce the inflammation wa unsuccessful.

It being feared by the appearance, that the antrum migh become involved, the second bicuspid, together with th remnant of the root of the first, was extracted.

December 2d. Patient again called. On examination, much pus was found oozing from the sockets where the teeth had been extracted, and the cuspidatus was very loose. Extracted this with my fingers.

A large sequestrum of dead bone, embedded in the gums, but entirely detached, was removed. The piece extracted extended from the alveolus of the first molar anteriorly, to that of the lateral incisor posteriorly, and composed the sockets of the cuspidatus and of the first and second bicuspids, including a portion of the floor of the antrum, ¼ of an inch in diameter.

The length of the sequestrum, was ⅞ of an inch: width, ⅝; thickness, where not destroyed about ¼ of an inch. On the lingual portion, commencing ¼ of an inch above the inferior surface, it had been destoyed, leaving probably, one-half of its thickness.

The remaining teeth were firm. The opening into the antrum, over the root of the affected tooth, (second bicuspid) was at least one quarter of an inch in diameter.

The antrum was syringed with tepid water, and a weak solution of the chloride of zinc.

February 7, 1871. In about two months, the patient again made her appearance. There had been some discharge from the antrum, through the natural opening, of a light-colored, thin, and rather offensive fluid, which had entirely ceased about ten days previously—and the parts from which the sequestrum was taken, were looking quite healthy.

The opening in the floor of the antrum was closed, but the lips of the chasm, on the lower portion, though lapped together, were not entirely united. By scraping the edges the desired effect was produced.

The feautures suffered no deformity, and the loss was made good by the insertion of a rubber plate with teeth attached.

The cause of the necrosis is somewhat obscure.

Though no unusual inflammation of the gums was apparent when the case was first seen, or at least, not enough to excite observation, it is probable that the maxilla was in process of decay—dead or dying—only needing a little irritation, to produce acute inflammation, and cause speedy detachment of the sequestrum.

It is not reasonable to suppose that a single application of creosote would, of itself, produce inflammation, and necrosis, and that the process of inflammation, death and separation of the bone, would be accomplished in the space of one month. If the cause was not constitutional, or produced by a blow, of which there is no evidence, then in the absence of other known causes, it must be attributed to the abscess.

There is another idea in this connection: if the use of creosote and other caustic and irritating agents, or what would be *considered a judicious use*, would constitute a danger, by its occasionally finding its way into the antrum, and producing inflammation of the lining membrane, then this danger would arise in the treatment of alveolar abscess in connection with the bicuspids and molars, if their roots pierced the floor of that cavi y, or the destruction of bone was so extensive as to permit the entrance into it, of the agent employed for the cure of the abscess. Whether it would or would not, it affords a hint for the exercise of care in the treatment of these teeth, under such conditions.—*Dental Register.*

MONTHLY SUMMARY.

Spoon Feeding.—Dr. Furst has published a pamphlet on this subject in Leipzig, wherein he gives good advice to mothers. To judge of the success of this kind of feeding, the author gives the following criteria:—At birth the child weighs about from six pounds and a quarter to eight pounds, the first for girls, the second for boys. During the first three days the infant loses about four ounces, but recovers its original weight about the ninth day. The child should, in the first four months increase from 300 to 375 grains per diem, and later only from 150 to

225 grains. At twelve months old a boy should weigh twenty pounds, and a girl about eighteen pounds and a half. If the child is far below the averages just mentioned, the assistance of a medical man should be requested.—*Med. and Surg. Rep.*

Sulphate of Nickel in Neuralgia.—A case of obstinate neuralgia is related, which was cured by sulphate of nickel, in doses of half a grain, three times a day. At the end of a week one grain was given. Its relative action was speedily manifested in reducing the pulse and procuring sleep; all symptoms of the paroxysm disappeared.—*Oregon Med. and Surg. Rep.*

Disinfecting Cotton.—Dr. Fresenius possesses a method for applying permanganate of potassa which seems to overcome many of the difficulties hitherto felt in practice, and this consists in saturating gun cotton with a solution of the permanganate of potash. The gun cotton is not decomposed by the manganese salt, as ordinary cotton is, but serves to expose and keep the greatest amount of surface for the action of the disinfectant Bandages of the gun cotton thus saturated with permanganate of potash can be readily applied, and in cases of open wounds, cancers, &c. must prove very acceptable to surgeons.—*N. Y. Med. Gazette.*

Innocent and Morbid Growths.—J. N. Danforth, M. D., Chicago, Illinois, (*Chicago Medical Journal,*) in a paper on the "Microscopic Appearances of Cancer-cells," lays down the following simple rules for drawing the distinction between innocent and morbid growths: Whenever a description of *one* of the cells of a microscopic specimen is a description of *all* of its cells, the chances are as ten to one that it is *not* cancer; whenever on the other hand, the cells of such a specimen are so varied in form and size that philology, and ingenuity, and imagination, and the most unflinching resolution, combined, utterly fail to accomplish the task of describing them, the chances are as ten to one that the specimen is from a malignant growth, whatever may be its name or location.—*Medical Record.*

Epithelioma Removed by Bromine.—Dr. Wynn Williams showed to the Obstetrical Society of London, "a patient, nearly the whole of whose lower lip had been removed for epithelioma eighteen months previously. The disease shortly appearing in the cicatrix, the growth was succesfully treated by two injections of bromine, twenty drops to a drachm of spirit. There was no appearance of disease at present."—*Lancet.*

A Bullet Makes Eight Wounds.—Sandford Moore, B. A., Assistant-Surgeon Fourth Dragoon Guards, in an interesting paper on "The Gunshot Wounds of the war," published in the *London Lancet* for July, 1871, says: "The bullet-wounds demanded the surgeon's attention, not alone from the injury inflicted on the parts, but from the eccentric course sometimes taken by the ball, One bullet dropped down a man's trowsers and fell into his boot, having previously passed through both thighs scrotum, prepuce, making in all eight wounds caused by this one ball. Another I have seen where the ball lodged in and was subsequently extracted from the right iliac region, having before this passed through the left elbow-joint and across the abdomen. And a third exemplifying the erratic passage of the ball: A soldier received a bullet-wound of the left thigh; and this was the only one which could be discovered about this extremity, or, in short, the only wound: nevertheless a bullet was found lodged in his right thigh, a short way above his knee, and was subsequently extracted. Where was the wound of entrance? I presume it was on the opposite thigh, and the ball must then have travelled round by the pelvis to where it was found lodged."—*Nashville Journal of Medicine and Surgery.*

Posture of the Head in Sleeping.—It is often a question among people that are unacquainted with anatomy and physiology, whether lying with the head exalted or on a level with the body, is the more unwholesome. Most, consulting their own ease on this point, argue in favor of that which they prefer. Now, although many delight in bolstering up their heads at night, and sleep soundly without injury, yet we declare it to be a dangerous habit. The vessels in which the blood passes from the heart to the head are always lessened in their cavities when the head is resting in bed higher than the body; therefore, in all diseases attended with fever, the head should be pretty nearly on a level with the body; and people ought to accustom themselves to sleep thus, and avoid danger.—*Home and Health.*

A Test for Purity of Hydrate of Chloral.—The Editor of the *Boston Journal of Chemistry*, in answer to a correspondent, states that when a fragment of pure hydrate of chloral is placed in a test-tube or wine-glass with a little water, and a few drops of liquor potassæ allowed to fall upon it, no discoloration takes place, and there is evolved pure chloroform, detected by the odor. If the specimen is impure, a dark brown reaction will result, and the odor evolved will be unpleasant.—*Clinical Record.*

Permanganate of Potash Injections.—Permanganate of potash, of the strength of five grains to the ounce of water, is a valuable injection of gonorrhœa and gleet. The strength may be increased up to fifteen grains. It should be used four times a day. As the permanganate loses its virtue by admixture with any extraneous matter, or exposure, it is advisable to mix the injection immediately before using it.—*Dr. T Ward. Braithwaite's Retrospect.*

Rare Form of Hare-lip.—Thomas Ogden æt. 4 months, has a fissure of the upper lip, situated to the right of the median line. Such occurrence is rare. Hare-lip may vary in degree from a slight fissure extending half way to the nostril extending entirely through the lip, the alveolar process of the superior maxillary and the hard and soft palates. Double hare-lip is not of unfrequent occurrence. The affection is always congenital and always occupies the upper lip. Dr. Gross narrated a case of a boy brought to him in Kentucky, where the fissure extended into the cheek. The edges were pared and brought together with pins and the twisted suture, and the boy made a good recovery.

Do not operate upon children of too tender an age. As a rule, wait until dentition commences; for before that period the blood is lacking in that plastic material which so thoroughly glues the edges of the wound together.

The steps of the operation consisted in first separating the lip from the gum. An assistant then grasped the upper lip on either side of the fissure, so as to control hemorrhage occurring from the severed coronary arteries, and the margins pared. Two hare-lip pins were then inserted in such a manner that one-third of the pin was behind and two-thirds in front of the lip, thus making them embrace the coronary artery. At the cutaneous margin of the lip an interrupted suture was employed, so as to bring the parts more accurately in apposition, and thus lessen the chances of deformity. The upper pin will be allowed to remain in 48 hours. The lower pin three days, and the suture a day or two later.—*Med. and Surg. Reporter.*

EDITORIAL DEPARTMENT.

Death in a Dental Office.—Miss Julia W. Doolittle, aged 31 years, of Hudson, near Fulton Avenue, Brooklyn, N. Y., called on Dr. Brewster, Dentist, on the 27th inst, to have a number of teeth extracted, preparatory to having made a set of artificial teeth. She had called on Dr. Brewster the Saturday previous, and said that she would be unable to submit to the operation without taking nitrous oxide gas or chloroform. He finally administered gas, but it did not have the desired effect. She wanted to take chloroform then, but Dr. B. refused to administer it, and informed her that if she persisted in taking it she would have to bring a physician with her who would assume the responsibility. An engagement was accordingly made for the morning of the 25th, at 9½ o'clock, and at that time Miss Doolittle called at the office and met Dr. S. G. Little, of Carlton Avenue, one of the most experienced physicians in the city. The doctor asked Miss Doolittle whether she was perfectly healthy, and she said that she was, but that she had slight palpitation of the heart, which she did not consider as anything serious, Dr. Little then administered four drachms of chloroform to her in the presence of Dr. Brewster and his assistant, who were in readiness to extract the teeth. After the teeth were drawn, the physician suddenly announced that the woman's pulse was becoming weak, and that she was sinking rapidly. They became alarmed and began to apply restoratives, but without effect. Several other medical men were summoned, and a galvanic current was used for more than an hour, but all efforts to revive the woman failed and she died. Dr. Little was shocked at the fatal result of the operation. He said that Miss Doolittle had called at his office on the Saturday previous, and made an appointment with him to administer chloroform to her at Dr. Brewster's. He met her there and administered four drachms of chloroform on a napkin. When she was under the influence of the drug the dentist began to extract her teeth. The doctor finding the pulse growing weak began to apply restoratives, but without effect. He had known Miss Doolittle about a month or six weeks only. She was a native of Connecticut, and had lived in Brooklyn ten or twelve years, employed in a sewing machine establishment, at a good salary, where she was considered a first class operator. The body was removed to the house of a relative, where a coroner will empannel a jury preparatory to an inquest.

The Tennessee Dental Association.—A correspondent sends us an account of the proceedings of the fifth annual meeting of this Association, which was held in Nashville, commencing on the 27th, and ending on the 29th of July last:

"During the the two days meeting peace and harmony prevailed; all present entering into the discussions upon the various subjects reported upon by the regular standing committees, such as Education, Physiology, Pathology and Surgery, Histology, Therapeutics, Operative and Mechanical Dentistry. Take the meeting altogether, it was a very good one. We are glad to say that the society has at last taken oue step towards educating the people in regard to their teeth. We will have reported at the next meeting a circular or pamphlet upon this subject. We hope the committee will succeed in getting up something that will be very interesting and instructive to the people. The next meeting will be held in Nashville commencing on the 27th of July 1872. The harmony and interest manifested in this meeting, we take as a sufficient guarantee that it will be one of the largest and most interesting we have had. We hope every good man in the State will turn out and let us have a good time generally. Officers for the ensuing year: S. C. Chisholm, President; Vice Presidents, G. C. Sandusky and J. C. Ross; Recording Sec'y; E. S. Chisholm; Corresponding Sec'y, A. Hartman; Treasurer, S. J. Cobb."

Virginia State Dental Association.—We are requested to urge upon our professional brethren of Virginia, the necessity existing for a full attendance at the meeting to be held in Richmond on the first Thursday of November next, not only of the members but of all practicing dentists in the State, as the vital interests of the profession demand a thorough establishment of the Association on a sure foundation. We trust, therefore, that this call will be attended to on the part of all who have the good of their profession at heart, and that the meeting may in every respect accomplish the purpose for which it is called.

Method of Applying Chloride of Zinc and Nitrate of Silver.—Dr. H. Judd in a paper on diseases of the gums and their treatment, read before the District Dental Society, Buffalo, N. Y., gives the following method of reaching the margins of the processes, or the periosteal structures at that point when they are reflected from the surface of the alveolar process into the alveolus, the great point being to reach the margins of the alveolus itself with the remedial agent employed:

"My method of reaching the seat of the affection with the medicine is as follows:—I make a short silver blade about three-fourths of an inch long and half an inch wide, of the thickness of a common silver plate, say number 26 of the guage plate, and solder on another piece of the plate to about one-fourth of an inch of it at one end upon both sides, so that one end will be three thicknesses of the plate. The silver being readily bent to any curve desired, it is more easily introduced between the teeth when this is desirable. The thick end of the blade can be easlly grasped by a pair of plyers or any other instrument which will suffice to carry it where it is desired. If you wish to use the nitrate of silver, place a little of the crystals upon the blade near the end, and hold it for a moment in the flame of a spirit lamp. It will fuse and be converted at once into a glassy fluid, which upon removing it from the lamp and allowed to cool, will be found to adhere closely to the blade, and can then be easily carried up under the edge of the gums and brought in contact with the periosteum covering the margin of the alveolus, thus making the application directly to the place where it is required. If chloride of zinc is to be used, it can be done in the same way, although if it is heated in this way it does not cling very tenaciously to the blade, still if the heat applied be not too great it will be attached sufficiently to the blade so that it can be carried up under the margins of the gums with little difficulty. Two or three careful applications a week of one of these agents is all that is required, and this treatment should be persistently continued until the gums become hard and firmly closed around the necks of the teeth. It is my opinion that a large majority of cases of this kind, if taken before the teeth have become much loosened, can in this way be cured, but it requires great care afterwards to prevent a return of the disease."

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ARTICLE I.

Alveolar Abscess.

BY C. STODDARD SMITH, D. D. S.

Read before the Illinois State Dental Society.

Until within a period commencing but a few years since, the subject of alveolar abscess was, so far as the literature of the profession was concerned, very much neglected; in fact, we think, it had been among our dental writers, up to that time, but very imperfectly understood. In the text books it was either summarily dismissed with a brief description of its nature, and a still briefer prescription for its cure, viz: extraction; or, if made the subject of more extended remark, it was generally in a theorizing sort of a way, with many speculations in regard to its pathology, and very few practical ideas looking towards its cure.

Our text books are not yet, as a whole, brought up to the present standard of knowledge upon this subject; but it is plain that a great advance has taken place among many members of the profession. Although we had noticed, and read with interest, articles relating to it, in the various dental journals, we were not aware that the subject had been

so extensively treated of late, as it really has been, u
having committed ourselves to write upon it, we c
cluded to look back and see what had been already writ
In doing this, we discovered that in a file of the issue
1870 of a single dental journal, were no less than twe
seven pages devoted to this subject; and in that of the sa
journal for the previous year, were eighteen pages. Alar
at this apparent exhaustion of the subject, we ventured
to open the index of any other journal, lest we should
convinced that our occupation was entirely gone.
now, in attempting to present this subject, we do so, as
stated at the outset, with extreme hesitancy, lest we sho
apparently, degenerate into a mere copyist, and should
of advancing a single idea which is not already threadb
When so much has been said, and so well said, by t
abundantly qualified to instruct, it can scarcely be poss
to treat the subject without going over substantially
same ground. We shall, therefore, in order to render
any service whatever, confine ourselves strictly to pra
calities. No discussion of the origin of pus cells, or t
identity with white blood corpuscles; of pyogenic m
branes, or microscopical phenomena, will here find pl
While we cheerfully recognize the necessity for such in
tigation and discussions. we think that largest results w
in this instance, be realized by a complete ignoring ther
We, therefore, proceed at once to a statement of the p
ology of the disease in question.

Pathology. And here we are again met by the fact
fore stated, that alveolar abscess is but the sequel to
advanced stages of alveolar periodontitis. In ordinary c
it does not exist without having been preceded, at so
time, by acute symptoms of that disease. We are oblig
however, to state that there are certain exceptions to
rule; at least it is not unheard of, to find teeth with "ulc
tion" at their roots, without ever having given rise to
acute symptoms, so far as the patient can inform us.
pulp has, in these cases, become devitalized, and all

steps necessary to the formation of an abscess, have been accomplished in such a gradual manner, there seems but the result to tell the tale. But, admitting that as a rule, periodontitis is the necessary forerunner of alveolar abscess, we must conclude that any of the causes producing that disease, may if the irritation be sufficient, give rise to alveolar abscess. That is, applying the general principles of inflammation and its results to this special case, if periodontitis, or acute inflammation of the investing membrane of the root of the tooth, be sufficiently intense in character to devitalize any particle of matter, then pus is formed, and a collection of pus is called and abscess; being without the socket or alveolus, it is called an alveolar abscess; but it is in all respects similar to any other collection of pus of equal amount, when we consider the character of the tissues within which it is formed. A common boil, though simply a collection of pus in the soft tissues, often gives rise to excruciating suffering; how easily, then, can we understand that when the abscess is confined within unyielding walls of bone, and in close proximity to nerves of acute sensibility, the results should be generally exceedingly grave.

Pus, if formed in any quantity, must find an exit. In order to do this, in this case, the bony walls must be pierced by the action of the absorbents, or some other channel of communication with the external surface must be established. This is usually effected by the most direct route; in the incisors and cuspids, the external alveolar plate being thin, is usually punctured; but at other times the pus burrows along the hard palate and discharges behind the soft palate; or penetrates the antrum of Highmore and thence through the nares; or again through the substance of the cheek. In the lower jaw it is usual to find the discharge nearly opposite the root of the diseased tooth, but it is not uncommon to find it making its exit through an opening at the base of the jaw, or at the angle.

Causes.—The causes which may give rise to this disea are really somewhat numerous, having been enumerated treating of periodontitis. But, practically, it will be fou that those causes which, after the disease is established, a within our reach, and which we are consequently oblig to take into account in the therapeutical treatment, are co fined to two, viz:

1st. Putrescent pulp tissue; and,

2d. Necrosis. This last may be subdivided into t divisions; necrosis of a tooth or root, and necrosis of p tions of the alveolus and maxillæ.

An additional cause which, next to these two, is perha the most unfrequent one, is undue irritation of the too from biting threads or hard substances; but as we cann remove this cause, we have nothing to do with it, in t treatment.

Symptoms.—These, up to a certain point, will of cou be identical with those of periodontitis. Extreme sensiti ness of the tooth to pressure or tapping; intense pain, a extensive swelling, are the well known phenomena whi mark the establishment of alveolar abscess. When pus formed, there is usually some diminution of intense pai but a constant and generally increasing dull pain until t pus is evacuated. The swelling is sometimes so extensi as to completely metamorphose the patient, running up t alæ of the nose, or along the submaxillary glands and ev down the neck, if in the inferior maxilla. The upper lip often protruded, and the eye almost closed. The soft t sues of the roof of the mouth are sometimes distended the size of a walnut, and the whole buccal cavity is in high state of inflammation.

If the disease comes from the first mentioned cause, t *color* of the tooth will form an important diagnostic sig A dark bluish appearance will generally indicate the pr ence of a dead pulp within the tooth, through the depa ure from the normal color may be so slight as to esca observation by any but a practiced eye. But a reflecti of light to the palatal surface of the tooth, by a mouth mirror, will usually disclose an absence of that *lively* or life-like appearance which characterizes a healthy tooth. The tooth is generally more or less loosened in its socket; and by these two symptoms it is often possible in an instant to detect the seat of trouble. In chronic cases, however, it is sometimes difficult to locate the cause of the abscess. In such a case the teeth must be carefully examined, and all suspicious fillings closely scrutinized, the history of the teeth being ascertained by inquiry: Had they ached before filling? Were there throbbing, shooting, pains? Did a season of quiet intervene between that trouble and the symptoms which preceded the formation of abscess? If these questions are answered affirmatively, and if the suspected tooth does not respond to thermal tests, we may reasonably suppose that the cause of the abscess is within that tooth. By suspicious fillings, we do not mean poor gold fillings; on the contrary, those well inserted, and apparently "all right," are most likely to be found in connection with a dead pulp. The conducting properties of such a filling have probably caused inflammation and death of the pulp; or perhaps arsenic has been used to obtund sensibility, and has not been confined to that result in its action.

When necrosis of a small portion of the tooth or root is the cause, it cannot be diagnosed from the first mentioned one, by any tests which are readily applied. When the whole tooth—or root— is necrosed, however, such a condition will be easily detected by the color of the tooth, the cleavage of the gums, and other symptoms. But when portions of the alveolar plates or of the maxillæ are necrosed, the probe will reveal the fact.

Treatment.—This will, of course, be in a measure dependant upon the cause. Having, by the signs just mentioned, ascertained pretty certainly, the existance of a dead pulp within the tooth, the first step in the treatment must be its complete removal. In order to do this an entrance must be effected into the pulp cavity in such a manner as will en-

able us thorougly to accomplish our object. If the tooth i
highly inflamed, it will not be possible for us to do mor
than make an opening through which the pus may fin
vent, at the first sitting. If we are able to establish a con
munication through the root, we should make it as free a
practicable—taking care not to force any debris through th
foramen, nor to close the canal with it. If the opening i
satisfactorily accomplished, the patient may be dismisse
with the assurance that the pain will subside speedily, prob
ably from that moment. A piece of cotton may be loosel
placed in the tooth to prevent food, etc., from becomin
impacted in it. In a day or two, or as soon as the inflam
mation has departed, a more thorough opening should b
made, the pulp cavity enlarged with suitable instrument
and the root canals also enlarged and cleansed. Wipe ther
out with cotton dipped in carbolic acid or creosote, and er
deavor to saturate the whole cavity with one of these sul
stances. In all these and subsequent manipulations, car
must be taken not to stop the canals or break off instrument
in them.

But we may fail to afford relief by opening into the tootl
We may be unable to establish a communication throug
the canal; or the root may be crooked at the point, so th
the drill instead of following the canal, will come out a
the side of the root. In this case the treatment will no
reach the seat of the disease, and the flexible drills sold a
the depots will be found of little use, and very liable t
break off. We have now the choice of cutting or drillin
through the alveolar plate, to give exit to the pus; of ex
tracting the tooth; or of hastening on the suppuration b
stimulants. As soon as the location of the abscess mani
fests itself, the lancet should be freely used, which will a
once afford relief.

We have heretofore been considering cases in which a
abscess has has been formed at the time of our first seein
the patient, but its contents have not been evacuated. W
have seen that if an attempt to save the tooth is to be mad

this evacuation must be accomplished in one or two ways —either through the tooth, or alveolus. But suppose at our first inspection, we find that a fistulous opening has already been established. The acute inflammation will then have passed away, and the abscess is now in a chronic stage. Pus is either constantly discharged, or at intervals, when the patient "takes cold in the tooth," as he expresses it, a greater or less degree of soreness is noticeable; the gum swells somewhat, but the bony walls not being restored, the soft tissues soon yield, and the discharge is re-established. In these cases there is not sufficient irritation to cause a constant discharge, and thus keep the fistula open. Or, it may be, that there is a constant oozing of pus through the tooth itself, or through some concealed fistula, so slight as to escape our notice. Before we attempt any medication in these cases, we must, as before, enter and cleanse the pulp cavity. There being no inflammation in the pulp tissues, this will be easily accomplished. Having done this as thoroughly as possible, we are ready to begin to adopt the medication necessary to restore the parts to health.

Medication.—As we have previously stated, it was formerly considered that a tooth giving rise to a discharge of pus could not be cured. But in the present more advanced stage of dental knowledge, we can, without hesitation, affirm that alveolar abscess is in eight or nine cases out of ten, a curable disease. In fact, when arising from the cause now under consideration, we are disposed to regard it as nearly amenable to treatment, when circumstances are favorable, as an exposed pulp.

The two agents most to be relied on in securing the result, are *patience* and *iodine.* Carbolic acid also, is a necessary adjunct. The patient must be prepared, if necessary to submit to an extended, though by no means painful treatment, and the practitioner must remember that the secret of his success will be *thoroughness.* We have seen that the cause of the disease is the presence within the teeth of decomposing material generating gas. Upon the complete removal and neutralization of this matter, the discharg would entirely cease, were it not that the parts have a sumed an abnormal or diseased condition. The periosteu has become separated from the surface of the root to greater or less extent; has become thickened and distende and forms "sac" which contains the pus. In many case the complete cleansing of the roots, would alone effect cure; in other, perhaps a majority, therapeutic agents mu be relied on to break up and cause to be absorbed the diseased tissues. In others still, the separation of the per osteum has been so long continued or so extensive that, i consequence of lack of nutrition, necrosis has taken plac in the cementum. When this is the case, to any extent, n amount of treatment short of an excision of the necrose portion, will be likely to effect a cure; since the necrose portion cannot be exfoliated as with true bone, but unle absorbed or excised must remain to be continually produ tive of irritation.

The object of our treatment then, will be to break up th diseased structures, and overcome the "habit of disease. The agent to be relied on, as we before observed, is iodin We use it in combination with creosote or carbolic aci both because it is thus conveniently applied, and because the stimulating and antisepic properties which this articl possesses. No formula is necessary for this combination. I to a sufficient quantity of carbolic acid, we put iodin enough to saturate it, and leave an excess at the bottom u dissolved. As the mixture becomes thick, more acid ma be added, or more iodine, when all is dissolved.

We must now endeavor to bring the mixture into conta with the diseased parts. This may be done in either or bot of two ways—through the root or roots, and through th fistula, if such exists. To accomplish the former, we wra a little cotton on a broach, and after dipping it into th mixture, force it up and down in the root. This is, in fac a sort of a pump, the broach and cotton acting as the pisto and the tincture is thus forced through the foramen an into all the parts. In the majority of cases, the patient will be sensible of the presence of the medicine by a "warm," "burning," or "drawing," sensation, as it is variously described, at the root of the tooth. Great care must be taken not to force the instrument through, or break it off in the root. It is desirable that the patient should be sensible of the presence of the medicine. Should there be a fistulous opening, bubbles of air may, in favorable cases, be seen coming from it, followed, in many instances by the medicine itself. When this occurs, we regard a cure as almost certain, unless necrosis has taken place. It may be necessary to repeat this process many times. We have known it to succeed in apparently very unpromising cases, after one or two applications. On the contrary, in the most obstinate case we ever knew, it was necessary to treat probably thirty times, and for a period of some months. This case, however, resulted in a complete, and so far as we know, permanent cure.

After thoroughly medicating, we prepare to stop the tooth. If there is no fistulous opening, great caution must be observed in doing this. It is not likely that the discharge, if there is one, will be stopped instantly; and should its exit through the tooth be cut off, swelling of the face must be the inevitable result. The root should be filled with a long tent of cotton saturated with the iodine mixture, the end of which is *left protruding*. The external cavity is now filled with cotton dipped in sandarach varnish, and the protruding cotton pushed in, which will unite the whole into one piece; which, should the teeth give trouble, may be withdrawn by the patient. The latter is directed to present himself at once if any soreness supervenes, unless circumstances render it impossible, in which case, if the tooth becomes really troublesome, he should withdraw the cotton. We may expect some throbbing, possibly soreness, and some swelling of the gum. If no particular uneasiness is felt, however, the cotton should not be disturbed, but if the throbbing increases it should be at once withdrawn, which will give relief. If there is a fistulous opening, we have n hesitation in stopping the tooth tightly, as any discharge c pus will find exit by this means, and the patient will not b obliged to withdraw the cotton. But where none exist we may be unable at first to do more than stop the tooth i the loosest manner, and as the disease is subdued the fillin can be more tightly introduced.

Before dismissing our patient, the fistulous opening, i there is one, may be attended to. We are in the habit c introducing a tent of cotton dipped in the iodine solution as nearly to the apex of the root as possible, by means of small probe. Care should be taken not to have an exces of the medicine on the cotton, as it will find its way wher it is not wanted, upon the lips and gums. The end of th cotton should be cut off short enough to be pushed into th fistula. The object of this cotton is to keep the externa part from healing till the secretion of pus has stopped, an the internal parts are healed. If the treatment has bee successful, very little more pus will be secreted, and th parts will at once begin to heal by granulations. The co ton will, in the course of two or three days, work out of th orifice, which will then close up. Its exit, however, shoul be rather retarded than accelerated, and the end should b cut off as it protrudes, that it may not be removed until i comes entirely out.

But, on the contrary, if the treatment has not effected cure, the cotton will remain unmoved, and should be withdrawn at the first opportunity.

We allow everything to take its own couree for a wee or two. If at the end of that time, it would seem that n success has attended our treatment, we have only two word to say—repeat it. Success is attainable by these mean where the only cause is the presence of a dead pulp, whic is the case in a majority of instances, that is, if the tooth i so situated that complete cleansing is possible, and the medicine can be brought into contact with the diseased tissue When, however, the discharge of pus has been continued s long that necrosis of a portion of the root has occurred, it will, so long as the necrosed portion remains, be impossible to effect a cure And this leads us to a consideration of our second cause, viz: necresis.

This, it will be recollected, we subdivided into two parts, necrosis of the tooth or root, and necrosis of portions of the alveolus and maxillæ. If a necrosed root is present, it must of course, be extracted, and usually this will be advisable, if any portion of a tooth is thus diseased. The only alternative, in order to save the tooth, is to excise the necrosed portion, in which case the remainder of the tooth may assume a healthy condition and be tolerated by the surrounding structures. This may be accomplished either by cutting through the alveolus with a suitable instrument, and cutting and scraping away the necrosed portion; or the tooth may be extracted, the necrosed portion excised, the end polished and the tooth replaced. Though it would seem almost impossible that that this operation should be successful, yet the well known fact that a tooth may be successfully replaced after being removed, and even after being out of the socket for a considerable length of time, would lead us to believe that the cases of this practice which have been reported, are not imaginary ones. But we should regard the attempt to save the tooth, when necrosis has taken place, in the light of an experiment, and should not be surprised if it did not succeed.

When portions of the alveolus and maxillæ are necrosed, they must be removed, either by the processes of nature, or by an operation, when, with the application of an astringent and detergent wash, the discharge will cease.

A few words relative to cases which either have already discharged from the outside of the face, or give evidence of speedily doing so. This result it is very important to prevent if possible, as the resulting scar is a serious disfiguration, particularly in the case of a female. It is generally produced by poultices, or by lancing by ignorant dental or medical practitioners. In case the skin is not already bro-

ken, no effort should be spared to prevent the external d
charge. We should consider first the advisability of a
tempting to save the tooth. If in the upper jaw, a
valuable, the attempt may be made, but in the lower ja
gravitation and tension are against us, and this is an arg
ment for extraction. If we decide to retain the tooth, t
pulp cavity should be cleansed; then the lancet should
freely used from the *inside.* Evacuate the pus, if possib
Apply sedative and astringent applications externally, ta
nin, vinegar, laudanum, or arnica and water. Cold applic
tions may also be found useful. It may be advisable to use
compress and bandage, to prevent the external breakin
No dentist should ever put a lancet into the cheek und
any circumstances.

In case the external discharge has already taken plac
we should consider, first, the sex of the patient, and secon
the situation of the fistula; our object should be to heal t
orifice without the disfiguration of a scar. If the patient
a male, the scar will probably be hidden by the whiske
or it may in either sex, be so located as to be out of sig
beneath the chin, in either of which cases the tooth may
once be extracted. Should it be found difficult to deci
upon the tooth giving rise to the discharge a silver or pl
tinum wire may be passed along the fistula till it strik
against the root of the tooth. But if the opening is in sig
especially in the case of a female, the tooth should not be
once extracted, as great depression of tissue will result
cicatrization. An artificial fistula should be made from t
inside with the lancet, and the original opening healed
granulation, after which the tooth may be extracted.

ARTICLE VII.

Keeping Cavities Dry.

BY DR. K. B DAVIS.

Read before the Illinois State Dental Society.

To the operative dentist, who aspires to perfection in t
insertion of his filling, the subject of controlling the sali

and keeping cavities dry, is one of pre-eminent importance.

No matter what form of gold we may use, whether foil or sponge, light or heavy, or whether we use hand or mallet pressure, absolute freedom from moisture is requisite to perfection in the fillings.

There are three sources from which the fluids of the mouth come, that annoy us in filling teeth, viz: from the salivary glands, mucous glands, and from the blood vessels of the gum when wounded in the course of the operation. In protecting cavities from the flow of saliva in operating upon the teeth, we must take into consideration the localities from which it comes. The saliva is principally secreted by three pair of glands: the parotid, the sub-lingual, and the sub-maxillary; and very nearly the whole of the secreted fluid passes into the mouth through two pair of ducts—the duct of Steno and the duct of Wharton. The duct of Steno passes from the parotid gland along the inside of the cheek, covered by the mucous membrane, and opens opposite the first superior molar. The duct of Wharton conveys the saliva secreted by the sub-maxillary gland, and the greater part of that formed by the sub-lingual gland, and opens on the side of the frænum of the tongue. To any one not familiar with these facts, the points at which the ducts open may be ascertained by examining the mouth at the points indicated.

Of the various means resorted to by the profession for keeping cavities dry, none have been so universally adopted as the napkin. This, in connection with spunk, may be used to protect simple crown cavities of superior molars from saliva very effectually. We can, ordinarily, secure dryness of these cavities by adopting the following method. Wipe the mucous membrane dry over the mouth of the duct of Steno, then lay directly upon this a pretty thick piece of spunk, about an inch square; then take a napkin and fold it cornerwise, and place the end of it directly upon the spunk, between the cheek and the gum, allowing it to pass back of the tooth to be filled, along the palatal surfaces of the teeth, to the anterior part of the mouth, letting a f of it come down upon the tongue to protect the filling fr the breath, and to catch any fragments of gold that may f from the instrument. The spunk and napkin are to be he in this position by the fingers of the left hand, and if will keep the mouth of the duct closed, a complete exclusi of moisture is secured.

In some cases it will require some pressure upon the na kin, while in others, very little, or none, will be require the spunk adhering very firmly to the mucous membran and very effectually preventing any flow of saliva.

But can we protect cavities in the inferior teeth by t use of the above means? We certainly cannot, exce in those favorable cases, that may be denominated "d mouth." We can, with the addition of the tongue-hold to the spunk and napkins, fill small crown cavities in t class of mouths.

I direct the patient to place the point of the tongue agai the roof of the mouth, as far back as possible. I then, wi a piece of spunk, dry the mucous membrane around t mouth of the duct of Wharton, and immediately apply piece of spunk, into which I have previously cut a slit admit the frænum of the tongue, and packing it under a close to the sides of the tongue and gums. When this done let the tongue come back into its place. Upon t tongue lay a smoothly folded napkin, and upon this adjust t tongue-holder. Now, on the side on which the tooth is be filled, place a piece of spunk against the opening of t duct of Steno, on this a napkin, allowing a portion of it come down upon the tongue to protect the filling from t breath, as in filling superior molars.

I presume that no one who pretends to operate upon t teeth is not already quite familiar with the use of the na kin and spunk, in protecting cavities from moisture, but fear that there are many who have never learned to appr ciate the value of a tongue-holder, a compressor for t duct of Steno, nor the *rubber dam*; although they have been in use by many in the profession for several years.

From the observation that I have made, it is my honest conviction, that not more than one dentist out of every ten in the country,—and perhaps some in our large cities—has ever attempted anything like the habitual use of the rubber dam.

New theories and new inventions, however meritorious, do not readily meet with public favor. It seems to be a difficult matter to give up old methods and theories of operating, even after far superior ones are fully demonstrated to exist. It is this fact which keeps many men all their lives on the track upon which they happen to start. When a new and better method is presented, perhaps they may slightly investigate it, try it a little, and because they cannot at once succeed, before they get familiar with it, better than by the old method, they at once abandon it, and go groping and stumbling along in the old way. Whenever a new method of practice is introduced, if the principle be correct, and it promises greater facilities in operating, with better results, it is the duty of every operator to examine it until its merits are fully appreciated.

To any one not familiar with the use of the rubber dam, the old method of protecting cavities from moisture may seem the better way; but when an acquaintance with the use of the results are thoroughly seen, which makes an ample return for all the time and labor spent upon it; and which will develope in a light never before so clearly seen, the imperfectness of the old plan of keeping cavities dry.

It is strange that men will constantly remain blind to the fact that it is a duty they owe alike to the profession, to themselves, and to the people, to at once familiarize themselves with the use of the rubber dam. We all know how difficult it is to keep a large majority of the cavities we are called upon to treat, dry, and the operator that is not in the habitual use of the rubber dam must exhibit a very limited influence in conservative dentistry; or else he must resort to the use of amalgam in a large majority of cases; whi has a strong tendency to lower the operator's ability, and depreciate the people's estimate of the profession at large

The people *expect*, and as a *right*, *demand* of the oper tor, the use of every known means that is calculated to s cure the very *best* results.

The rubber dam not only protects any and all caviti from the saliva, mucous secretions, and the breath, but does much more than this. After we have it carefully a justed on the tooth or teeth as the case may be, we feel ou selves complete masters of the situation, and we can the operate with perfect coolness and deliberation, without single fear of an inundation, however difficult or long an tedious the operation may prove to be.

It is peculiarly serviceable in those large cavities requ ring hours of time, taxing severely the patience of both op erator and subject; it enables him to allow the patient a fe moments rest occasionally, to spit out the extra flow saliva; and all of this without fear of moisture coming i contact with the filling. Under these circumstances, wha operator will not make much better fillings than he poss bly can where he is laboring under constant fear that befor he gets the filling completed it will be flooded, and that h will have to remove it all and commence anew, wit the sad reflection, that a second effort may alike prove failure.

I think I may say without a fear of successful contradic tion, that at this day if any one still persists in refusing t familiarize himself with the use of the rubber dam, he ver justly lays himself liable to severe censure, alike from th public and the entire dental profession.

We now come to a consideration of the application o rubber to the protection of cavities from moisture durin the operation of filling.

The first requisite is to procure a good quality of rubber and it should be pretty thick. Much of the rubber that wa sold two or three years ago was entirely too thin, and con sequently was worthless; but all that I have used for the last two years has proved to be of a very good quality.

The size of the piece to be used will vary, owing to the location where we wish to use it; generally a piece from three to eight or ten inches square will answer all indications.

Holes should be cut at the proper location in the rubber, in size about one-tenth the diameter of each tooth, and from one-eighth to a sixteenth of an inch apart. Carefully stretch the rubber until the holes are large enough to pass over the teeth, previously removing any deposits of tartar, should there be any present, so the rubber may draw tightly around the necks of the teeth and prevent any leakage. With a thin, blunt-pointed instrument work the edges of the rubber well under the free margins of the gums; there, from the natural shape of the tooth, it will in many instances remain; but in a majority of cases we will have a resort to a ligature to assist in its proper retention. We may use for this purpose saddlers' linen or silk, either of which should be well waxed before using. It is then placed around the tooth and with the blunt instrument above referred to, forced under the margin of the gum and worked well around the neck of the tooth, and then tied on the buccal side of the tooth in one knot, but with a double turn of the thread. If the teeth to which we wish to apply the dam approximate very closely, it is difficult to pass the rubber between them, but by carefully stretching it until the spaces between the holes become very small and thread-like we can generally succeed. However, if this does not suffice, we may insert a wedge between the teeth near the gum until a slight opening is made for the rubber to pass, when the wedge is to be removed. This process may sometimes become necessary on each side of the tooth.

In placing the rubber dam and ligature upon an upper or lower molar, Dr. Forbes' rubber dam applier may be used with much advantage and more pleasantly than we can use our fingers.

There are some lower molars that the dam cannot be tained upon by the ligature. In these cases we must res to a clamp made especially for this purpose. Those I h in use were made by H. Spackler & Co., of St. Louis, a answer the purpose very well. In these cases where cavities extend beyond the gum towards the neck of tooth it is very essential to have the rubber worked beyc the margin of the cavity, or else we will fail in our m purpose and have moisture where we least desire it.

If the gum should be hypertrophied so as to interfere forcing up the rubber, it may be removed with the lance bistoury.

In the application of large pieces of the dam to the bic pids or molars there is a strong tendency in the rubber corrugate or wrinkle up into folds and thus obscure a g view of the cavity. To obviate this difficulty we may sort to the following method: The rubber being prope adjusted, cut four little holes in such localities as will indicated in each individual case, and in each of these ho place a small wire hook, to which narrow pieces of tape small cord are attached, letting these pieces of tape p down under the chin or around the head, or both, as nec sity may demand, and tieing them just firmly enough hold the rubber down and entirely out of the way while troducing and finishing the filling.

The rubber dam has and will continue to work a migh revolution in operative dentistry. A few years ago a la majority of operators from their inability to thoroughly k cavities dry, were in the habitual use of amalgam and ot cheap fillings, very many of whom have now learned the in timable value of the rubber dam, and consequently are n enabled to preserve many of those priceless gems wh beauty and symmetry they were formerly in the habit marring or ruthlessly destroying.

ARTICLE III.

American Academy of Dental Science.

The fourth annual meeting of the American Academy of
ntal Science, was held in Boston, at Christian Union
ll, 300 Washington St., at 10 o'clock, A. M., September
h, 1871; the President, Dr. Daniel Harwood, in the
ir.

The usual reports were read and accepted, showing the
iety to be in a flourishing condition. The Censors re-
ted the names of several gentlemen who were elected
nbers of the Academy.

The following officers were chosen for the ensuing year:
President, Daniel Harwood, M. D.; *Vice-President*, E.
Wilson, M. D.; *Recording Secretary*, L. D. Shepard,
D. S.; *Corresponding Secretary*, E. N. Harris, D. D. S.;
asurer, E. G. Tucker, M. D.; *Librarian*, John Clough,
D.

Board of Censors—E. G. Tucker, M. D.; J. L. Williams,
D.; W. W. Codman, M. D.

At one o'clock the annual address was delivered by Prof.
H. McQuillen, M. D., D. D. S., of Philadelphia. His sub-
t was "Dental Education." The address was a very fine
duction, and was delivered in an earnest and eloquent
nner, eliciting the interested attention and hearty ap-
val of the assembly.

At its conclusion it was voted "That the thanks of the
ademy be tendered to Dr. McQuillen, of Philadelphia,
his very able address, and that a copy be requested for
lication and preservation in our archives."

Essays were then read by Dr. James McManus, of Hart-
l, on "Dental Operations;" Dr. E. N. Harris, of Boston,
"Causes of Caries of the Teeth, and General Means for
serving the Teeth;" and Dr. L. D. Shepard, of Boston,
'The Merits of the Old and New Methods of Practice."
vote of thanks was presented to the essayists.

At 4 o'clock A M., the Academy adjourned to the Pa ker House, where they partook of an excellent dinner, an enjoyed therewith many pleasant and appropriate speech from those present.

After the dinner, the members were invited to the roon of Prof. McQuillen, who exhibited some interesting an valuable microscopic preparations.

The Academy holds regular monthly meetings in Bosto which are well attended, and the time pleasantly and prof tably occupied in discussions, reading of papers, present tions of specimens of morbid anatomy, operative and m chanical dentistry, &c.

E. N. HARRIS, D. D. S., Corresponding Sec'

ARTICLE IV.

American Dental Association.

By C. STODDARD SMITH, D. D. S.

SECOND DAY—*Morning Session.*

Called to order at 10 o'clock. Minutes read and approve

The subject of "Dental Physiology" being declared sti open— .

Dr Taft said he hoped this discussion would not be c short. He was pleased with the report, yet it seeme scarcely to cover the ground which a report on that subje should cover. Physiology is the science of the functions living bodies; the report and discussions had had referen to histology—the development of organs. This is an inte esting study, but not now under consideration. The ma festations of function are modified by circumstances. A organic tissues do not present the same phases. There a deviations from the normal standard. No two organs a in all respects just alike; there is just as much variety as the faces of individuals. They have many things in co mon, but each has individuality. Histology is closely link with physiology, but the examination of the different gans, their susceptibilities and liabilities, and their influen pon each other, is an important point for our consideration.

Prof. Rufus K. Browne being introduced, said that he ould rather speak before this body than one of his own rofession. You alone who are advanced and advancing, sten with respective minds. The medical profession, though s backbone has been repeatedly broken, listens with no eceptivity. The literature of physiology represents no ruth. He finds in that literature one statement alone hich represents truth—that in reference to the circulation f the blood, set forth by Harvey. When he began his esearches he he did not doubt but that the books contained ruth; but eleven years of study, day in and day out, had onvinced him that they were a mass of error. Study means, ot reading words in a book, but observation of function in he body—the tissue should be studied not the book. The ane of the profession is, that the phrases of books are acounted knowledge. They had better be discarded than eaned upon any longer. The ordinary reader can not pick ut the few facts from the thousand errors. Words have o meaning but in the minds of men. The same words hich Huxley uses to express the grossest error I can use o express my own convictions of truth—for instance the hange of color in the blood. The phrase, as used, repreents no truth. What constitutes this change? Physiolo·ists have said that there were two changes; there are no wo changes; blood has no color apart from the red globules; ey take oxygen into the body, and this produces a change f color. After coursing through the vessels, the blood eturns to its normal purple condition; this is called by phyologists another change. The fluids of the blood take no xygen, the solids only do that; they take up a definite nount, just as is done in the formation of chemical comounds; in doing this the change of color takes place; carnic acid has no influence in making it blue, though Flint d Dalton will so assert to-day as they have done for years. he moment the oxygen leaves the globule, it leaves it its rmanent purple color; carbonic acid does not touch it.

The ruling truth is to see that these globules are what th are, and this truth will one day supplant all error. W the medical profession aid? Not much. The greatest called discoverers are no discoverers; they have literally the first idea, the new microscopy will differ from the as truth from error. The relation of oxygen to cells is th of departure and supply.

Dr. Atkinson. We suppose that we are prepared to ferentiate between truth and error, in which case we m know more than the authors of books themselves. Fa are the external manifestations of truth.

Prof. McQuillen had noticed with pleasure the enthusia manifested by this body when advised to study nature. H many of you will do so? If all that is embodied in wo on physiology is as naught, if the labors of men who ha been justly regarded as master minds have only resulted the accumulation of a mass of error, how dark the pa how unpropitious, how hopeless, the future! If the effo of the past have been barren in their results, how can expect anything better of the future? Shall we look w contempt on the teachings of the kind mother who sta us on the road to knowledge, because, perchance, one d we may know more than she did? She did her best. I big says, "Show me the man who makes no mistakes, a I will show you a man who has done nothing." The f of making mistakes frequently deters observation and expr sion of opinion. If he would urge anything on the prof sion, it would be that its members should make themsel familiar with books and then go to nature. He could agree with the idea that books should be thrown aside useless. He does not recognize that any one has taug that oxygen is carried directly to the tissues by the red c puscles; nutrition is extra vascular.

Prof. Browne. The red corpuscles do not carry oxyg but yield it to the fluid which carries it. Oxygen nutri nothing; substance nutrifies.

Prof. McQuillen repeated that the red corpuscles do not pass out of the capillaries, though in some cases the white corpuscles are said by some observers to do so. Did I understand Prof. Browne to state that no carbonic acid is formed in the tissues?

Prof. Browne. No union of carbon and oxygen takes place in the body. When you state that red corpuscles carry oxygen, you state what the books say, and it is contrary to truth.

Prof. McQuillen. Assertion that fact is fact does not make it so. Men of science demand proof. To deny that there is a union of oxygen and carbon taking place in the body demands more than assertion. Chemists tell us that this does occur. That carbonic acid is present in the venous blood and in the pulmonary exhalations is easily demonstrated. Where does it come from if not from this union? We must consider the conditions. In the dark, certain elements remain in close proximity, without union, for an indefinite period; but let a ray of light enter and they unite with explosive energy. Carbon is found without color in the diamond; in charcoal and graphite it is black as night. Chemically there is little difference in these substances, although so dissimilar in appearance; is it not, then, reasonable to infer that carbonic acid *may* impart color to the blood? Some minds are easily denominated, saying "Yes, yes," to-day, to one man, and "No, no," to another to-morrow, on the same subject. He would impress upon the minds of those present that they should read books but should not be bound down by them; they should respect the efforts of the brilliant minds of the past, and not consider them as ignoramuses, and their works, as containing no truths.

Dr. Harriman. It is our duty to respect brilliant minds, but we must cull over their works. They may have been correct in their day, but science is not stationary. I have assisted Prof. B. in demonstating these facts. He speaks from experience. He has worked hard, and none appre-

ciate it. His book, when it appears, will be a new dispe
sation. What does a chemist know about living matte
As soon as he examines it he kills it; it is something el
He respects chemistry, but has seen the falsity of many
its teachings as plainly as he sees the President in the cha
The microscope has now been so far improved that the t
timony of the fathers is almost set aside.

Prof. McQuillen. The gentleman informs us that he h
had peculiar advantages for investigation. I dislike
speak of myself, but would say I have for weeks, from ear
in the morning till late at night, experimented on this ma
ter of the blood with dogs, cats, rabbits, etc., and do n
wish to be understood as speaking from books. These e
periments have been republished in the leading medical a
microscopical journals of America, England, and German
I respect truth whether from a sage or from an ignoramu
and will take exceptions to error emanating from whom
may. Truth will live, and what is the use of foisting in
miserable individuality?

Dr. Atkinson. He who asserts is bound to prove; tru
is not negative.

Prof. Judd. That principle is correct, but not alwa
recognized. As to the fact of the circulation of the blo
being the only truth in physiology—we are acquainted wi
the views which have been advanced by Prof. Brow
through articles in the journals; but we believe there a
other facts beside that one. Does the gentleman mean
assert that the stomach is not a digestive organ, or that t
kidneys do not secrete urine? While we recognize h
efforts, we know that he is not the only man who has spe
his life in the pursuit of science. There is an acquired si
nificance. As to change of color in the blood. That que
tion has been discussed. The gentleman was understood
say that there was but one change of color. There is a
admitted change from purple to scarlet. Now, if there
no second change, how does it become purple again? If
is changed, there is a change back again. We are awa

that the medical profession has not appreciated the work of investigators; it is the fault of that profession. But there is a growing disposition to admit proof, and when the gentleman's views are proven he will receive credit for all the innovations he has made. The next gentleman endorsed these views with the whole weight of his authority. These errors a longer life will sometimes correct. There are two ways of looking at these things. There are two parties; one is conscious of knowledge that they cannot impart. I am conscious of my own existence, but cannot demonstrate it objectively.

Dr. Harriman. The stomach does not digest the food, it only contains it. The gastric juices assisted by the saliva digest it. As to the white blood corpuscles passing through the walls of the vessels, he has never seen it, but perhaps the previous speaker has. Cells produce cells; he knows that, for he has seen it, as others of you doubtles have.

Dr. Thomas, of Detroit. The questions which have arisen are of great importance; but there are practical questions of more interest. Though he is not a student, yet he has accepted the theories of men whom he sees around him, and is humiliated to hear that no truth is contained in them. The publication of the work referred to would be the proper mode of presenting these views.

The subject was then passed.

The report of the Committee on Dental Pathology was then called for, and Dr. Atkinson, Chairman, read a report of which the following is a very brief synopsis:

It was stated that two questions must be definitely answered before any test basis can be reached: first, what is pathology? and second, what is surgery?. We cannot say affirmatively, in honesty, that any such basis has been reached. We have, however, learned much that is affirmative. The habits of the dogs of the chase were spoken of. They endure fatigue without food for days; they refuse food for a time after their return, and eat voraciously subsequently. This is an example of a stage of physiological rest

to tissues to fit them for normal work, and this princip
has not been sufficiently heeded by physicians and surgeon
The best treatment of surgical cases in fat subjects is
imitate hybernation, and institute forced physiological res
Supply of nutriment must be fluid, or carried by a fluid
the tissues. Physiology is normal function, pathology
divergent function. It has been hinted that it is impuden
to question the authority of books and teachers in our inst
tutions. It is rather the veriest malpractice to follow d
rections not understood and principles not comprehende
The most advanced are but abecedarians. What, then, sha
be said of those who cannot discern the alphabet? Stu
things, not books; or if not the thing, its nearest represe
tative, as—1st, its bust; 2d, its portrait, 3d, its descriptio
and 4th, its name. Surgery is the means made use of
restore lesion of tissues; it is either conservative or repa
tive; the former attempts to limit pathological action; t
latter, to restore lost parts.

Cells are endowed with an inner portion of protoplas
called nucleus, which receives and disposes of the pabul
of the body as the stomach does for the animal. Any d
turbing influence to this action produces pain or disea
The perception of this may be central or local; mind a
function are interdependent. Man need not look beyo
himself for an acquaintance with the laws which govern
genesis, fruitage, and dispersion in the ocean of force a
form, from which were formed the earth and all its inha
tants; so when we have all knowledge pertaining to t
least individuality, we shall be able to fulfill our car
without arrest. The beginning or ending of individualit
will be indifferent as to first or last. The cosmos is a p
num, and must consist of two-ness and not one-ness. Sp
taneous origin of tissues is unwillingly acknowledged by t
advocates of the "germ" theory. To understand the probl
of individual career we must analyze the department
consciousness. We must observe the inception, ripeni
fruitage, and dispersion of a single body or process throu

out its serial metamorphosis. Thermal changes are motions of molecules. Could we control these (in the body) at will, we should have nutrient activity in our power. Extremes of this condition alike kill the molecules. When the change has not been too great, we restore by a gradual application of heat and cold, and where coagulation has taken place we have recourse to surgical manipulations.

No marked advance has taken place within the year in pathology and surgery. The usefulness of the method of treatment of necrosed bone by the use of sulphuric acid has been more fully established. Two new remedies have been brought into use, viz, thymol, as a substitute for creasote, and the mono-chloro acetic acid, both of which have been imported only a short time. I have tried them, and recommend them to you as invaluable.

Adjourned.

SECOND DAY—*Afternoon Session.*

Called to order at half-past three o'clock. The Secretary being absent, Dr. C. S. Smith was appointed Secretary *pr tem.*

Prof. McQuillen objected to the resolution adopted yesterday, inviting certain dentists to participate in the discussion, as it was in violation of the constitution and the objects of the association. A reconsideration of the vote by which the resolution was adopted was moved and passed, and the resolution amended so as simply to invite all persons to seats on the floor without participating in the discussions.

"Dental Pathology" being still in order, Dr. Atkinson explained further the new remedy referred to in the report —thymol. He said it was related to the phénol and carbol, series. The objection urged against the smell of creasote does not apply to this. It is rather pleasant.

Dr. Crouse called the speaker to order, on the ground that he was speaking on therapeutics, not pathology. The Chair sustained the point of order.

Dr. Atkinson appealed, and the appeal being sustained

Dr. Atkinson said that some men have to have the grace o God beaten into them with a mallet. Thymol is pleasan to patients, especially hoœopathists, who abhor creasot It was obtained from Darmstadt, in Germany. I have like it from the first. It is not fluid at ordinary temperature but a glycerole has been prepared which retains its fluidity I have introduced it and endorsed it fully. It is very fin for ulcerous patches in the mouth. It is a disinfectant.

Prof. McQuillen asked if Dr. Atkinson said that pestilence existed in Persia on account of the absence of scientific knowledge.

Dr. Atkinson. Yes.

Prof. McQuillen said that we are apt to forget our obligations to the East, not only for systems of religion, but als for the development of science, and especially of medicine.

Dr. Atkinson. I said that it was an opportunity to repay the debt we owe these countries, which were formerly land of religion and science.

Dr. Walker said that he had intended to prepare a report upon the disease produced by rubber, but had no done so. He hoped, however, that the subject will be thoroughly handled. It is well established that the membran of the mouth is five times as sensitive as any other. Th observations of those who do observe carefully establish tha this is one of the greatest scourges, and should be discusse thoroughly, and every effort made to get rid of it.

The subject of "Dental Pathology" was then passed.

The Committee on Histology were called and asked fo further time. Granted.

The Committee on Voluntary Essays presented a pape by Dr. G. W. Harriman, of Boston, which was read by th author.

The paper opened by asserting that the dentist of th present day must be thoroughly versed in a knowledge o the human frame, and a worker and student in library an laboratory. The variation in the normal number of teet between the mammalia and other branches of the anima ingdom was noticed. The constituents of the teeth were amed—all the dentinal tissues receiving their due supply f lime-salts from the proper sources. There is no such hing as enamel pulp as stated in the books. Enamel is ormed by the calcification of the fibres. Prior to calcifiation, the tissues forming the dentine are a homogeneous nass of fibres and cells. The essayist then took issue with rof. McQuillen in respect to his views as to the contents f the dentinal tubuli; the latter, as was stated, denying the xistence of nerve fibrils in the tubes. In contravention of his doctrine the essayist said, first, that the amount of fibrin n the blood (2 pts. in 1000) was not sufficient, if coagulaed, to produce the appearance presented; second, that fibrin vill not coagulate when separated from the red corpuscles. fter announcing his total want of agreement with authors nd investigators, the essayist accepted the commonly acepted theories of the development of the teeth as establishd by Goodsir, which show that the primitive dental groove, nd the germs of the teeth, may be discerned about the ixth week of fœtal existence, asserting that he could disover no osseous deposit in the jaw before the twelfth week, or any signs of the teeth prior to the seventh month. The ssayest scouted the idea that any appendage to a tooth has onnected with it anything resembling prisms, pillars, or ubes, hollow columns, tubuli, or hard pipes, as generally n dental works. The tubuli are nothing but cell fibres, ranching away from the pulp and terminating at the enmel, and the fact that they are not tubes was said to be stablished by the impossibility of injecting them with carnine. The paper closed with a reiterated attack upon auhorities in general.

Prof. McQuillen said, after the reading of the paper, the round traveled over obviated the necessity of any report n histology. He may have said positively that dentinal ibrils are coagulated fibrin, but it was not his habit to state hings in that manner. He was generally in the habit of ffering his views suggestively. He was not as yet convinced that the fibrillæ are nerve fibres. The microscopica appearance of a tooth differs according to whether it is fres or dry. In the dry tooth there are certainly tubes or tubuli which had been occupied by the soft-solid fibrillæ. Th paper said that fibrils existed in the tubes six months afte extraction. I ask whether the tooth had been manipulate with chemicals?

Dr. Harriman. Yes.

Prof. McQuillen. Then the dentine was in an altere condition. In making a microscopical examination of tooth, or any other organized structure, to determine th peculiar characteristics, it should be subjected to as littl change of composition as possible. It was stated in th paper that the author had not found teeth germs at an time before the seventh month of uterine existence. Now it is a historical fact that a king of France, Louis XVI, wa born with errupted teeth; cases of this kind are of quit frequent occurrence; this, then, would allow but two month for the processes of tooth formation and eruption. Prof Judd took some exceptions to the propriety of applying th term exostosis to the enlargement of cementum. He ha preparations with him, previously submitted to the Academy of Natural Sciences, in which the difference in bone dentine, and cementum was apparent—the bone showing Haversian canals, canaliculi, and lacanæ; in hypertrophied cementum the Haversian canals are not found. A ma accustomed to the microscope can readily distinguish between hypertrophied comentum and bone. As to nerv fibrils in the tubuli, he must see them to be convinced—i was his practice to follow assertions with demonstration He wanted to see not only the nerve fibres, but the nerv cells, that had been described and figured in an article published in the *Dental Cosmos*.

Dr. Atkinson. There is evidently a boggle about th conception of truth. Exceptions may be taken to the pape in a number of its parts. The gentleman though a faithfu worker, shows a want of range of observation. Bone, enamel, and cement have different characteristics. How shall we recognize them? This depends on the locality of the bone. A single stratum might contain no Haversian canals; but if you have enough to say that it is bone, you have a Haversian system. This system is a portion of cartilage that has been converted into bone. If the uncalcified tracts are large enough, they have blood vessels running through them. Cement is the medium of communication of pronouncements of force and form. The give-and-take movement is constantly going on on all sides of the little lake. Cement has canaliculi, never Haversian canals. The corpuscles of cement are never equally distributed around the canaliculi; those next the pabulum have more branches than on the side nearest the enamel. What is dentine? A compromise between cementum and enamel. Uncalcified tracts are not solid tracts.

Dr. Crouse moved that an extra session be held to-morrow evening, for the purpose of fixing the place of next meeting and election of officers. Carried.

Adjourned.

To be continued.

SELECTED ARTICLES.

ARTICLE V.

Temporary Teeth.

BY CHAS. E. KOCH.

Read before the Chicago Dental Society.

There is, perhaps, no subject in relation to the teeth, upon which the public is less informed than that which we are to consider this evening. Even from among the most enlightened of our patients upon other matters, we occasionally hear the remark, "I did not know it was of any importance to preserve the *baby* teeth, wont others come in their places?"

Possibly we are in a large degree responsible for this almost criminal ignorance; and we certainly mistake ou calling, and are remiss in our duty, if we do not improv every opportunity to enlighten and educate the publi mind upon this subject. We should always impress upo mothers and those having the care of children, the necessit of taking care of the deciduous teeth; and we certainly wil find a higher reward in the contemplation of the results o such few words of instruction and admonition, that we coul possibly realize in any other way.

While general rules may be of some service as a guid in practice, these can seldom be closely adhered to in an given case, as special conditions or contingences may deman a marked deviation in treatment of apparently similar cases

To be able to treat deciduous teeth scientifically require by far more circumspection and reflection than would similar condition in the permanent organs. We will, i nearly all cases, have to exercise our individual judgment based upon physiological and pathological laws, and th anatomical relations of the deciduous teeth to their successors, before we can make a conscientious diagnosis, or prognosis.

An all-wise Providence has given to children a set o teeth, which the study of physiology has convinced us, are given not merely as an ornament, but for a functional purpose. These are to last for a certain time, when they are to be replaced by such others as will more readily perform the increased requirements of an increased organism. This fact ought to convince us that our efforts should be in the direction of preservation.

To this end all the remedies generally employed as preventives of caries should be recommended. Chief of these are cleanliness—of the body as well as the oral cavity—pure air and properly nutritious food.

Should caries occur in the deciduous teeth at an early age, and be allowed to progress, it would probably cause serious inflammatory disease in the surrounding tissues, and premature loss of these teeth. Hence such carious cavities ought to be filled as early as possible with some suitable material, with a view of preserving them during their supposed time of usefulness. The molars and cuspids being thus affected, before say the ninth year, should especially be treated in this manner. As these are generally succeeded by others in from the tenth to twelfth year, it is hardly necessary to attempt preserving them through this means, should caries set in after the times first mentioned, unless we have some good cause for suspecting a retarded, or numerically deficient, second dentition. Should we know that either of the child's parents suffered from a retarded second dentition or a deficiency in number of the permanent teeth we would have good cause for attempting to save the deciduous teeth beyond their usual time of shedding.

Unless the incisors are attacked by caries at a very early age, say the third or fourth year, it is hardly necessary to interfere with them, as caries can be more readily retarded in these teeth by especial care. If it be deemed advisable to interfere with caries in the teeth by an operation, it may often be found that cutting away the diseased portion by means of proper instruments, and leaving a polished surface, will most effectually prevent further progress of the disease, and preserve the teeth during their natural lifetime. The fact that these teeth are usually succeeded by the teeth of replacement, in from the sixth to eighth year, must not be forgotten. The process of calcification in the permanent teeth of this class commencing quite early, there is less danger of injury being caused to their germs from lesions upon their decidious predecessors, than in the case of those teeth having a later period of eruption.

Should periostitis occur in the deciduous teeth, the treatment ought to be the same as in the case of the permanent teeth.

If the pulp has become exposed in teeth which it is essential to preserve for a while longer, a filling of oxychloride of zinc should be introduced in the carious cavity, having previously treated this as we should have done in the per-

manent teeth. If we do not succeed in keeping the zi
filling dry sufficiently long to insure its hardening, we ca
remove all but a cap of it over the exposure and fill ov
this with Hill's stopping, gutta percha, or if you pleas
amalgam, well washed and pressed. I must declare m
preference for the first named substance.

It has been for a long time a matter of doubt in my ow
mind, whether the heroic practice of using arsenious ac
in deciduous teeth, for the purpose of devitalizing their pulp
is judicious or not. Since the almost uniform success wit
oxychloride of zinc there is hardly any excuse for incurrin
the risk which almost in all such cases must accompany th
use of arsenic. No matter how astute our observations ma
be we cannot tell to what extent absorption of the roots ha
progressed, and hence we cannot tell how far the action of th
arsenic may penetrate, even with as much certainty as in th
case of the permanent teeth ; and you will no doubt bear m
out in the assertion that even in these teeth this *certainty*
doubtful. We have often to extract deciduous molars wit
divergent roots, which remain quite firmly fixed and whic
would have led us to suppose that absorption had not pr
gressed, far ; yet, upon removing these teeth, we find that th
dentinal substance next to the base of the pulp is entirely gon
and the pulp in contact with the plexus of absorbents. Can w
tell how much of the tender tissues, besides the pulp would b
destroyed by an arsenous application in such a case ?

The permanent tooth may have advanced so far in i
process of calcification as to escape injury, but its alveolu
certainly would suffer. Necrosis and exfoliation of th
latter might ensue; and may not the sequestrum, in tryin
to make its exit, exercise sufficient force to misdirect th
advancing permanent tooth, so as to cause malposition o
this in the dental arch ?

A lady patient, while absent from the city, suffered wit
severe pain in an upper left cuspid tooth, which had bee
previously treated for alveolar abscess through an openin

to the dental canal, made from the anterior cervical surface of the tooth.

The dentist upon whom she called, evidently did not understand the case, and made an application to *destroy the nerve* through this opening, which of course did not afford her any relief. She returned about a week after, and I then found the labial side of the gum in a very much inflamed condition, and observed spiculæ of the alveolar process quite loose, portruding between the affected tooth and its anterior and posterior neighbors. These were removed, and the tooth treated with sedatives and stimulants until the pain had entirely ceased, and its surrounding tissues presented the appearance of health. The patient was not seen again for over three years, until very recently when I found that the labial plate of the alveolar socket was entirely gone, as also the soft tissues over it. The root is entirely denuded of its covering, and is a black unsightly looking mass. The tooth is still quite firmly fastened, but seems to have made an advance anteriorly, being now more prominent than its mate. This is probably caused by new deposits of bone upon the inside of the paltal plate of the socket. This case does not properly belong here, unless it may aid us to judge by analogy.

After the exhibition of arsenic in a deciduous tooth, injury to the alveolus may not be so permanent, as the growth of the alveolus of the permanent teeth is contemporaneous with their eruption, and is not entirely completed until some time after these teeth have assumed their permanent position; still, as we cannot tell just in what manner, and to what extent this drug may act injuriously, we had much better abstain from its use altogether.

Whether the premature loss of the deciduous teeth predisposes irregularity in the permanent teeth or not, seems still to be a mooted question. Mr. Tomes thinks there is more harm done by extracting too late than too early, as the now absorbed deciduous roots may so much resist the advance of the permanent teeth as to cause them to take position posterior or anterior to their deciduous predecessor Prof. Harris thinks much harm is done by premature e traction, and a consequential bony contraction, and is di metrically opposed to Tomes. Before concluding whic view to adopt, let us examine into observed physiologic facts. Nearly all writers agree that the space occupied i the jaw anteriorly, by the ten teeth of the deciduous se and the anterior ten teeth of the permanent set, is ver nearly equal.

I have had imported from the publishers at Leipzig, recent German work on the Pathology of the Teeth, b Prof. Weld, of Vienna, a notice of which I have seen in th *Cosmos* for February, of the current volume. The fir seventy pages of this work are devoted to physiology an anatomy. Glancing over this, I noticed a series of mea urements in regard to the growth of the jaw, which deemed of interest enough to translate. With your pe mission, I will interline this translation here.

"Hunter was the first to take the position that the ma illary portions occupied by the deciduous teeth, do not gro after the completion of the first dentition. Fox agreed wit him in all essentials. They arrived at this result by mean of measurements of macerated jaws. Delebarre, upon th contrary, has tried to establish the longitudinal growth the bone after first dentition, by clinical observations; h maintains that the deciduous teeth separate from one anothe at the age of five or six years, and says that individuals wit whom this does not occur, are threatened with an irregula second dentition. Fox recognized this appearance befor Delabarre, yet did not attach to it the same signification, a he believes that the anterior portion of the maxilla unde goes scarcely more than a change of form, which is in con formity to the shapes of the permanent teeth and does hardl add to its size. Thomas Bell remarks emphatically that w must not rely upon comparisons of jaws of different indiv iduals. The only way to arrive at the truth in the matte is to examine the same jaw at different stages and com pare the results. This says Bell, I have repeatedly done, and am not at all backward to say, that the ten anterior permanent teeth form a somewhat larger arch than the temporary teeth which preceded them. Chapin Harris joins in the belief of Bell, and thinks that the transverse and perpendicular dimensions of the anterior portion of the jaw, continue to grow until the completion of second dentition and even up to adolescence. Tomes inclines to the opinion of Hunter, and expresses himself as opposed to an interstitial bone growth.

According to Hunter, the growth of the arch of the lower jaw in its perpendicular dimensions, is owing to periosteal and in its transverse dimensions to expansive bone growth. He is of the opinion, that there does not occur any more essential growth in the arch of the lower jaw, between the first molars, after birth. Welker's measurements are said to agree with this. Generally Hunter expresses himself as opposed to an interstitial growth of bone. Rich. Volkman expressed himself in favor of this some time ago, and again recently. C. Ruge and Julius Wolff have also declared themselves in its favor. I join these for reasons which will become obvious in the perusal of this work.

There can be no doubt that, as already stated, the expansion of the arch of the jaw is produced by the formation of new bone substance upon its facial wall, and resorption upon the lingual wall. By this process the front teeth are shoved in an anterior, and the posterior teeth in an external (buccal), direction.

This locomotion of the teeth is, however, only to be thought of, if, in the interior of the bone, resorption also takes place, as otherwise the teeth, being covered by new layers upon the facial wall of the jaw, finally would be nearer the lingual wall, which is not the case.

Hence there must be an interstitial resorption. Fox advocates a change of form of the jaw during gsowth, yet this is, as mentioned by him, only true in the case of the upper jaw. He says: if we compare the jaw of a child with that of an adult, we will remark a very apparent difference ; th of a child forms nearly half of a circle, that of an adu half of an elipsis. This metamorphosis of the jaw we w investigate closer further on.

To establish the proportions of the growth of the low jaw we must first search for the least variable point fro which to commence our measurements. As a matter of cour we cannot attain to absolute exactness, and the truth ca only be approximately arrived at. The unavoidable erro in observation. are weightiest when the distances to measured are smallest. The longitudinal dimensions off fewer difficulties in their establishment than do those height and thickness.

I have instituted a series of measurements upon forty-fi skulls of children in regard to the growth of the lower ja lengthwise, and also partially with a view to become a quainted with the individual differences ; and have used fo this purpose a thin, somewhat moistened, strip of pap closely applied ;—and with this I have measured the per pheral limits. Measurements made upon a crooked obje by means of a pair of dividers, give, as a matter of cours their sector, and this latter remains the same under variab crooks. As a fixed point, for measurements of the anterio portion of the lower jaw, we take the mental foramen, bu here we must remember that the locality of this hole is no a constant one. Its anterior border is sometimes foun (upon the lower jaws of adults,) between the two bicuspid sometimes immediately under the first, and sometimes unde the second bicuspid, yes, even sometimes in a plane wit the posterior canal surface of the second bicuspid. Thes variations occurring in a small number of lower jaws give us a source of error of from three to four Mm.* We wi not take any note of this, but keep in view the distanc from the line of union of the two halves of the lower ja (which is easily marked with a lead pencil) to the anterio border of the mental foramen. In a five month embryo, we obtained a distance of ten Mm. New born child, 12-13; in 4, 5, 6, 7, 8 and 9 months old children, 15-18 Mm. In 1, 2, 3, 4, 5 and 6 year old children, the distance remains nearly the same, 18-19 Mm.; only in four cases they reached 20-23. Mm. In a child of the age of 1 year, five months and twenty seven days, with erupted central incisors, 20; in one, one year ten months and ten days old with erupted first molars, 21; in one, five years old with a complete set of temporary teeth, 21; and in a child six years and one month old, with strong denture, 23 Mm. In 7, 8, 9, 10, 11 and 12 year old children, it varies between 22 and 24, and in comparative measurements of lower jaws of adults, between 23-25 and 29 Mm. If we overlook extreme cases, we will find the most important growth of this portion of the lower jaw in the first months after birth, and a stationary condition after the eruption of the deciduous teeth, but during second dentition we find an increse which at least amounts to three Mm. To meet the accusation that no regard has been had to the thickness of the facial wall, several measurements were taken after removal of the facial wall, there appeared however, as was to have been expected, no essential difference.

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*A millimetre is the 25th part of an inch or two-fifths of a line.

Further measurements, in the same manner, by means of a strip of paper, were taken on the facial side of the lower jaw along its whole length, and that is from the marked place of union of its halves, to the most prominent part of the condyloid process, which can be done so long as the latter does not protrude too much over the level of the alveolar ridge. This periperal line amounts in a five months embryo, to 40 Mm in one of sevev months to 43; in thenew born child from 45-52 Mm; increases up to the fourth month to 58, up to the seventh month to 62, up to the first year to 67, up to the end of the second year after the eruption of the first molar to 77, up to the fourth, fifth, and sixth year with complete deciduous set of teeth to from 78-85, and in a child seven years old with erupted permanent molars to 100 Mm. Beyond this age such measurements can not well be made. After subtraction of the anterior border of the mental foramen, we obtain the rate of increase of the posterior mass from the last named border to the condyloid process; and we obtain in this way an increase from 10-23 Mm. in the anterior mass. Hence the quotients are as 2.56 : 2.3. The difference arises on the account of the more extensive growth of the posterior division of the jaw.

To be continued.

MONTHLY SUMMARY.

Treatment of Headache.—Dr. C. J. Cleborne says in the *Medical Record:* Of course, in the treatment of this affection, whether it be idiopathic or symptomatic, the most important indication is to discover and remove the cause. But among the various remedies used for its relief, it would seem that the application of heat and cold has not received the attention it deserves. Now. instead of applying to the *head* a cloth wrung out in cold water, or an evaporating lotion, a more rapid and much better effect can be produced by the same applications applied to the *neck;* or a piece of intestine of the required length may be filled with ice water or pounded ice, and wrapped like a collar round the same part. Should it be necessary to use cold water to the head, a "beef-bladder" filled with ice water or ice (the neck of the bladder being tied around a cork) is a most efficient and clean mode of employing it. Heat may be applied in a similar manner, and will often succeed when cold fails to produce relief. The hot water may be put into a bladder, or into a rubber bag closed by a clamp, which may be obtained at a moderate cost. As a counter-irritant, I prefer a plaster made of freshly powdered capsicum to that of mustard, as it is quite as efficient, more cleanly, and may be left on for a number of hours without blistering the tenderest skin. In a case of severe nervous headache the happiest effect may sometimes be obtained from a capsicum plaster placed over the nape of the neck, shifting it when necessary, or when it becomes unbearable, to the forehead or between the scapula, at the same time constantly applying to the face sponges squeezed out in *very hot* water. By this means the headache has often been quickly relieved, the patient falling asleep, and waking free from pain. When the headache is accompanied by throbbing in the carotids, temples, or forehead, a ensation of fulness, pressure, or heaviness over the eyes, a "pumping headache," as it is sometimes called, prompt relief may sometimes be obtained by cold applications to neck, and a capsicum plaster or hot application to epigastrium. If there be much nervous excitement, with a quick irritable pulse, small doses of tincture of digitalis or of aconite will be of service. For the irregularity of pulse and other symptoms accompaning a hrobbing or "pumping headache," especially if there be giddiness, flushing of the face, etc., one-twelfth or one-sixteenth gr. doses of extract of belladonna, every two or four hours, will be found invaluable. For persons of studious, sedentary, or intemperate habits, headache, particularly the variety known as *Clavus*, will generally yield to the acetate of strychnia, extract of nux vomica, or extract of ignatia amara. In nearly all cases he judicious employment of cold or heat will greatly facilitate he treatment, and of themselves, often suffice to cure.—*Medical and Surgical Reporter.*

Treatment of Poisoning by Carbolic Acid.—Mr. Charles Roberts remarks that the indications for treatment are to remove he poison from the stomach as speedily as possible, to neutralize its action, and to treat the general symptoms of collapse in the ordinary way. A mixture of olive oil and castor oil has been recommended, and employed in some cases, with the object of diluting and carrying off the poison by the bowels, on the theory that it acts only as a corrosive, and is not absorbed. As we know that it is absorbed, it would be doubtful practice to continue this treatment and to make the acid run the guantlet of the fat absorbing surfaces of the small intestines. As carbolic acid is very slightly soluble in water, probably the speedest and most effectual way of removing it mechanically from he stomach would be to administer large quantities of warm water, or of mustard and water. As it is very soluble in glycerine, that substance with water and sulphate of zinc might be employed after the bulk of the poison had been removed by the

former plan. From the serious action of the acid on the m
cous membrane, the stomach pump should be employed wi
great care, and probably would often be inadmissible. Mr. Ro
erts states that he knows of no substance capable of neutralizi
the acid chemically, but its well-known affinity for albumino
compounds would point to eggs and finely mixed or powder
raw meat as likely to prove of service. If eggs were used,
would be necessary, for obvious reasons, that they should be ve
much diluted by being whipped up with milk or cold wate
Milk is not coagulated by carbolic acid, and therefore would n
act as a neutralizer, but it would be a more suitable applicati
than oil to the injured mucous membrane, and less likely
produce further discomfort to the patient. The general sym
toms of collapse must be treated in the usual manner by intern
stimulants, and friction and warmth to the skin. The rectu
would be the most suitable part to which stimulants should
applied. If raw meat were given, it might be well season
As brandy dissolves carbolic acid, and is itself speedily absorbe
its administration by the stomach would be contra-indicated.-
British Medical Journal.

Bone Felon.—Of all painful things can there be any so excr
ciatingly painful as bone felon? We know of none that flesh
heir to. As this malady is quite frequent and subject of mu
earnest consideration, we give the latest recipe for its cure, whi
is given by that high authority, the London *Lancet:*

"As soon as the disease is felt put directly over the spot a f
blister, about the size of your thumb nail, and let it remain f
six hours, at the expiration of which time, directly under t
surface of the blister may be seen the felon, which can be i
stantly taken out with the point of a needle or a lancet."—*Dru
gists' Circular.*

Salivation Consequent upon Artificial Teeth.—Dr. Charles
Buckingham in answer to Dr. O'Connell's question, in the Jou
nal of June 29th, says that "I have seen several cases such as
describes, where the teeth were upon red rubber plate. A
this moment I can recall three such cases seen with a twelv
month."—*Boston Med. and Surg. Journal.*

Citrate of Caffein in Neuralgia.—Dr. G. W. Arnett, of Bossier Parish, Louisiana, reports a number of cases in which he has had great success in the treatment of neuralgia by the use of citrate of caffein and sulphate of morphia; also in nervous headache, hysteria, and other similar diseases. His prescription varies in amount to suit the case, the average being—

Sulph. morphia, gr. ss.;
Caffein, grs. iij.;
Citric acid, gr. iij.

to be given in some warm coffee, or, what is better, in a decoction of race ginger. The caffein and citric acid will, in the majority of cases, relieve nervous irritation without the addition of the morphia, which is a desideratum when the bowels are constipated. Its acts powerfully on the skin, equalizes the circu-ation, and thereby removes local congestion.—*Georgia Medical Companion.*

Pyroxyline Dissolved in Oils.—*Xylonite* differs from *Parkesine* n respect of the solvents employed—fixed oils, such as castor and linseed oils, being used for this purpose, as well as wood naphtha, alcohol, and other of the hitherto well-known solvents. In order to render the oils solvents of pyroxyline, it is necessary to heat them previously, then dissolve a portion of camphor in them, after which they become solvents of pyroxyline. This, Mr. Spiller pointed out, is a new fact in science. The cotton used for this purpose was the lowest form of gun cotton, and burnt very slowly on account of its low nitration. The temperature of the oil has to be raised to 300° Fah. in order to dissolve the cotton. The cotton is prepared by immersing it in four parts of sulphuric acid to one part of nitric acid at a low temperature. —*British Journal of Photography.*

Advantages of Methylene as an Anæsthetic.—Dr. Rendle, of Guy's Hospital, writes to the *Lancet* in favor of the use of methylene. He considers its advantages to be that, when properly administered, it is only exceptionally followed by nausea or ickness, both of which have followed the use of nitrous oxide gas. Its portability as compared with the latter is also an ad-

vantage. He states he has given it for operations lasting o
hour, when the operator was able to commence in three minu
and recovery was rapid and not followed by sickness; also
operations lasting less than a minute, when all was finished a
the patient sitting up within five minutes without the slight
unpleasant sensation.—*Lancet.*

EDITORIAL DEPARTMENT.

Dental Items.—Are Vulcanite Plates Injurious?—Dr H.
Clarke writes on this subject to the "Am. Chemist," as follow

"For two years past it has been my lot to lecture upon che
istry in the Boston Dental College. And, quite naturally, o
of the questions which I am oftenest asked by unscientific frien
is, whether the vulcanite plates upon which artificial teeth
set are injurious to health? The vulcanite being colored w
vermillion, the popular prejudices against mercury are occasio
ally aroused with regard to it.

I have been in some measure forced to make inquiries in t
matter. And for the benefit of those who may desire to kn
what little is known upon the subject, I have written the resu
of my inquiries.

In the first place, the question is not settled. Some hold t
vulcanite plates are poisonous, while others believe them to
in all cases harmless. All I can do, then is to balance pro
bilities. Now, there are some cases in which the wearing of a v
canite plate has been attended by sore mouth. But, on the ot
hand, similar soreness, some dentists assert, is frequently cau
by gold plates. Unfortunately there are no statistics by wh
we can determine the relative values of gold and vulcan
as regards health. If it should be shown that gold plates p
duced soreness as often as vulcanite, then it would be clea
unsafe for us to ascribe the occasional ill effects of the latter
the mercury contained in it. It might be possible that so
tender mouths would be irritated by any kind of plate.

Again, thousands upon thousands of vulcanite plates are wo
and the cases of injury are comparatively rare. Therefore i
well to bear in mind, in any case in which sore mouth might
ascribable to the mercury in the rubber, that it is quite po
ble that the soreness is due to some other cause. A man
have a sore mouth and wear a vulcanite plate, without the
mer being in any sense a consequence of the latter, There
such things as coincidences.

Taking all into account, then, it seems that there cannot
much danger in wearing vulcanite plates. That there *may*
some, I admit, but it is not proved that there is. It is cert

that, in the vast majority of cases, there are no ill effect directly attributable to the mercury. Indeed, the metal is combined in such a form that it is hard to see how it should cause njury to any one. The sulphide is not likely to be attacked by the fluids of the mouth, and ought, theoretically, to be wholly nactive under the circumstances. Therefore, it seems to me, no person need reasonably be deterred from wearing a vulcanite plate by any fear of possible injury from it. The chances of njury, if any possibility of injury exists, are so slight that they may be practically disregarded. The most prudent people run greater risks of injury to health in their daily diet than they are ever likely to incur by wearing vulcanite.

Painless Extraction of Teeth.—Dr. A. C. Castle in the "Dental Cosmos," states that he has for thirty years adopted the plan of 'obtunding or benumbing the extremities of the temporal nerves for painless extraction of teeth from their sockets with complete success, never having used or countenanced the exhibition of chloroform, ether, or nitrous oxide gas for this *minor* surgical operation. The benumbing, or *mechanical anæsthesia*, of the emporal branches of nerves obtunds the whole nerve to a sufficient extent to allow the teeth to be removed with sensation so slight, which, if not attending a special surgical operation, would scarcely be noticed by the patient. One of two modes may be adopted. Application of ice to the temples, which is somewhat distressing, the sensation of cold striking deeply. The other, to which I give the preference, is done by an assistant, with each of his middle fingers pressing their points (of the fingers) with persistent firmness and force into the *fossa* or hollow behind the the ridge of the temporal bone, which forms the external bone circle orbit of the eye. Pressure for one minute is all that is necessary. The practice is as simple as it is harmless, and leaves no after unpleasant sensation to annoy the patient. It is an instinctive method often adopted by people themselves, who press their temples with their fingers to relieve themselves temporarily of the acute paroxysms of nervous headache. This temporary pressure, with sufficient force, is all that is required to remove teeth painlessly."

Transplanting Teeth.—In the "Am. Eclectic Medical Review" and "Medical Cosmos" we find the following:

Transplanting teeth, there is good authority for believing, has been performed successfully by several dental surgeons. Twenty years ago, a surgeon dntist in Ithaca, in this State, extracted the teeth of a person which had grown in sideways, and re-set them straight, the operation being quite successful. Recently, an English dentist of repute, a Dr. Coleman, has applied th process to the treatment of *periodontitis*, from which many pe sons suffer severely, and in frequent instances nearly or qui a sound tooth is extracted to afford relief. Mr. Coleman e tracts the diseased tooth, cleans out the cavities, if there are an and fills them; scrapes the fangs clean from the diseased matt and accumulation of tartar which causes the pain, taking car however, not to disturb the mucous membrane about the ro of the tooth. He then bathes both the tooth and the cavit from which it was taken in a solution of carbolic acid, and r turns the member to its place, using no mechanical applian for making it keep its position, it becoming soon as firm ever. These are singular statements, but are so well authe ticated that they cannot be doubted.

Dr. L. D. Walter, (*Dental Times*,) reports a case of succes ful replanting of two superior incisor teeth accidentally di lodged by a fall, after they had become "perfectly dry and ha been out of place for fifteen hours. The teeth were thorough cleaned, and after the alveoli had been syringed with tepi water, inserted, and held in position by means of the fingers f about twenty minutes. The crowns were then capped wi sheet tin and this bound by means of fine wire to the adjoini laterals. The appliance was kept in position one month an then removed. In the mean time a suitable mouth-wash w used several times daily, to reduce the inflammation. T teeth are now, apparently, as firm and healthy as ever. The are not all decayed, and the color does not indicate death the pulp. The above operation was performed eleven mont ago."

Chloral in Toothache.—In the "British Medical Journal," D David Page recommends the introduction into the cavity of carious tooth of a few grains of the solid chloral hydrate as remedy in toothache. In a case which he briefly reports, h says, "the toothache was relieved in a few minutes; aching d not return all night, and, when it did in the morning, was aga relieved by the same means."

Preserving Vaccine Virus.—Dr. D. B. Hillis, in the "Pharm cist," gives a method of preserving vaccine virus between laye of dental red rubber, and remarks as follows in reply to inquiry on the subject:

"In reply to your note of inquiry as to the efficiency of t plan of preserving vaccine virus between layers of the red ru ber used by dentists, I state that for several years past I ha used no new matter, but have, for the sake of experiment, draw om the stock originally put up as described. I have always und it effective, though no care whatever has been taken as gards temperature. Last week I succesfully vaccinated a atient from a crust which had been lying about my office for *venty-seven* months."

American Academy of Dental Science.—From the "Boston ost," we take the following account of the fourth anniversary inner of this Society, served at the Parker House:

"Dr. Daniel Harwood presided. Prayer was offered by the ev. Theodore W. Snow. After doing full justice to the bill of are, the first speech was made by Dr. A. P. Stevens, of Portsouth, N. H., who spoke of the immense amount of incompeency among many claiming to be dentists throughout the land, nd of the necessity of thorough dental education. Rev. Mr. now said that he could revert to dental operations performed y Dr. Randall, in Boston, fifty-five years ago, who told his paients, to relieve their fears, that his instruments were wrapped silk. He knew of no more honorable occupation than a cometent dentist, and he felt a sincere regard for the highest inerests of the Society of Dentistry. Dr. E. T. Wilson spoke of he American Academy of Dental Science as an institution to e honored throughout the country. Prof. J. H. McQuillen, of hiladelphia, acknowledged in a happy manner the kindness ith which he had been received in Boston. Drs. M. B. Mead nd F. N. Seabury, of Providence, responded for the profession Rhode Island. Dr. James McManus, President of the Conecticut State Dental Society, rejoiced in the privilege of being resent to participate in the exercises of the anniversary. Dr. arwood said that he began forty-two years ago the practice of entistry in Boston, and had always labored for the elevation of he dental profession. While conservative, he believed in imrovement and progress. Dr. J. H. Foster, of New York, urged compulsory system of education as a remedy for the existing vils. Dr. C. E. Francis, President of the Odontological Society, f New York, spoke of dental societies as the very backbone of he profession. It is at such gatherings that the members bring heir best thoughts and keep up the spirit inculcated at the coleges. He thought we could not be too particular in the selecion of dental students. Dr. Joshua Tucker made a few remarks nd was followed by Dr. E. G. Tucker, who said it always gave im pleasure to recur to the old times of Harwood and the elder ucker, and to trace the branches from those pioneers to the resent time. The great and growing fact on which the progress f dental science depends is now conceded by educated men to e the union of theoretrical and practical knowledge, and it re-

mains to be seen how long the unthinking masses will pr
quackery to scientific treatment. Dr. L. D. Shepard, of Bos
spoke of the kindly feeling existing in the Academy between
old and the young practitioners.

"Dr. E. N. Harris, the Secretary, read letters expressing t
interest, but regretting their inability to be present, from
W. W. Allport, of Chicago; H. M. Bowker, of Montreal; S
uel S. White, of Philadelphia, and O. W. Holmes and Win
Lewis, of Boston. Mr. Charles H. Frothingham, being pre
as an invited guest, said that he did not think that dentists
body were unpatriotic, but he was surprised that no one
proposed the customary toast to the President of the Un
States, and in order they might not suffer in the minds of
by reason of this omission, he gave them, and thought there
especial appropriateness in so doing—"The health of the pre
Presi-Dent of the United States, Gen. Ulysses S. Grant, who f
his numerous *Dent*-al connections and his great admiration
the family—as evinced by his marrying a Dent and appoin
so many Dents to office—may be fairly considered the most
tinguished Dentist in the land." The health of Gen Grant, '
great dentist was then drunk amid much applause.

"Other speeches were made by Drs. H. F. Bishop, of Wor
ter; John Clough, of Woburn, and J. L. Williams, W. W. C
man, A. T. Emery, W. D. Tucker and C. P. Wilson, of Bosto

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ARTICLE I.

Pathological Condition of the Dental Pulp.

BY S. P. CUTLER, M. D., D. D. S.

What are the probabilities of saving a portion of tooth pulp in a healthy condition, after a portion had sloughed from exposure by decay, and at what point in the pulp chamber would be the most likely to be successful?

I have often witnessed in cases of exposure and partial sloughing after extracting the tooth, that a portion of the pulp included in the fang opens up a certain distance, sometimes nearly the entire length of the fang, that the pulp presented a normal appearance, only slight fullness in the vessels, the sloughing portion being somewhat decomposed with the usual smell; on splitting open the tooth sometimes pus is present.

In many cases of this kind, there is scarcely any pain or soreness, the alveolus and membrane normal, more especially in single fang teeth. In such cases, is there not an indication that nature is making a saving or conservative effort to retain a portion of such pulp from total annihilation? If so, is not an attempt on the part of the dentist, to save not only the tooth but a portion of the nerve also, in healthy condition, proper ?

We often find great tenacity to life in this remainin portion of nerve, even after arsenic has been used with pa tial success, so much so that no subsequent application su ceeds in total destruction of the remaining portion. have often noticed that in such cases, also in spontaneou partial sloughing, that the point diseased was just about th point where the tubuli leave the pulp canal, and terminate the margin of the enamel, at the junction of cement or abo on a line with the alveolus or a little lower.

This fact in itself indicates clearly to my mind the poi where we might attempt to save the remaining portion pulp, owing to the fact that all tubular nerve fibrils belo that point ramify through the cement to the periosteu thereby giving them greater vitality to life than those t minating in. the crown, at the more mineral or less vit tissue, the enamel.

There are many cases of decay where exposure of pu from any cause, produces no pain or uneasiness whatever ev where a larger number of pulps are exposed at the sa time, and undergo slow and gradual devitalization witho any actual sloughing, instead of a drying up and gradu loss of sensibility. In such cases I have noticed a norm condition of the fang portion of remaining pulp, no signs inflammation or sloughing. Again, on the other hand, a that in a majority of cases, we find inflammation accom anied with pain, followed by sloughing, frequently baffli all attempts to relieve, necessitating extraction sooner later, or killing of pulp outright, with small assurance permanent success. In cases of the former variety, we fully justified in attempting to save such exposed pulps, even where there is a portion of pulp gone by slow dec or as Liebig might call it *eremacosis*. I but recently fil such teeth with os-artificiel with promise of success. C bolic acid, styptic colloid, tannin, and creosote and ma other medicaments may be of service before filling. H ong such pulps may live or what per cent. of them ossify, ve have no definite data to decide the point. Sometimes he bulbous portions of the pulp may be sloughed away and own the fang to midway, and there making a stand as it vere, in the "last ditch" for dear life for an indefinite time, ustained and backed by other agencies, such as the hyperrophied or thickened cement up to that point, and then topping abruptly, and continues to grow or thicken so long s the nerve continues to live, at least so long as there is itality remaining in pulp within the dentine. At the same ime the dentine is undergoing changes, the canal narrowng, the tubuli also narrowing, which in effect narrows down itality to a certain extent, as there is less need for the usual mount of vitality, the area of nervo-hemal is diminished, ence, nature here proportions her necessities to the new ondition of things, never being prodigal with means or nds.

When a tooth as above described remains open and exoosed to the irritating influences of oval secretions, the emental and dental changes must necessarily be aggravated nd carried too far or to a point beyond conservative limits nd total loss demanded, but where the last stand is made nd timely aid arrives the tooth may be saved for an indefnite time, and made serviceable and companionable to the ossessor. There is established a dead line in the dentine t the point spoken of, not absolutely so in the cement above his line, as there must be some slight amount of vitality emaining, the dead line being confined to the dentine at he union of cement or thereabouts. One feature I will otice in the process under discussion is this: that when a erve in a tooth is destroyed wholly or in part, that aftervards there is no growth of cement at all above the point vhere vitality in the pulp has been destroyed, but may be he case up to the point of neural vitality in the fang, this rowth being the effect of irritation in the alveolus and fang, veakening vital resistance to lime encroachments surroundng the fang.

In this process, new improvised germinal matter, as Beale calls it, is improvised in the periosteum, and then sequent ossification of these cells of germinal matter or loid matrix takes place. Now I am only theorizing f want of positive knowledge, and instead of any new c improvised which are to undergo subsequent ossificat the periosteal cells may take an ossification *per se*, an consequence of weakened vitality, thereby yielding to os degeneration which is a downward process towards the n eral world, from whence all organisms originate. In first place a thickening of the inter-alveolar membrane ta place and more or less loosening of the tooth takes plac many cases.

Now as the cement ossifies, the inner walls of the alve must be carried away to make room for the encroach growth of cement. This is what is usually called absorp of the bone, which is actually the case, but the question how does this absorption take place? as the agencies break up bone and cause bone absorption, would theo cally prevent the growth of cement, still facts are facts cannot be ignored. In the above process one side of the m brane forms semi-bone, and the other surface of this membr must generate an acid of sufficient energy to decompos least one equivalent of the lime of the tubasic phosphat lime, leaving only a bi-phosphate which is an acid or su phosphate which is a soluble salt of lime, and is now wh disorganized and easily removed. The carbonate also b amenable to this acid action which readily disposes of earthy matter, and the pressure of the encroaching cem causes absorption of the ostiene or cartilage, by the u process of oxidation. Oxidation is incompetent to rem the earthy elements of bone, as that is already oxidized fore it becomes a phosphate and carbonate, and cannot up or hold any more oxygen, the calcium being comple saturated with it. After the entire nerve is dead and g from the entire pulp canal, on cutting out the canal an excavator some slight sensibility, as a general thing is t a certain point only, especially where the dentine is exeedingly thin. I operated but the other day on just such case where spontaneous death of the entire pulp had aken place some time previous. We often, in drilling pivot oles in fangs for pivot teeth, find some sensibility when ne drils so as to closely encroach upon the cement. am more convinced of these facts now than formerly.

Now the tide in the affairs of teeth with only a fang poron of pulp left alive turns, in my cordial opinion, upon the act whether or not this remaining portion takes on secondry ossification? If so all may go well if not too much urried. When this process fails, the probability is that in ost cases death ensues no matter what method is pursued. Ve have not facts enough before us to predicate a percentum, ut I here beg leave again to ask, are not the facts already efore us sufficient to justify us under favorable circumtances to attempt to save such pulp alive in preference to ny other course? I certainly hear an echo saying yes.

I will not pretend to advise any particular method how o treat or fill even in such cases, only give my favorite ethod: I prefer as an immediate covering over the pulp fter proper treatment, gutta-percha dissolved in chloroform, s it readily settles down over the pulp without any presure or imitation and readily evaporates, leaving a layer of ny desirable thickness over the tissue. I have sometimes sed os-artificiel, but this is more of a chemical agent than I ike just here, and may be added after the gutta-percha, and hen anything else the operator may prefer. I have had ome experience in this direction and some success, though ot extensive. We need more post mortem dental data n the subject.

ARTICLE II.

Patents.

Permit me to call attention through the Dental Journ
to the fact that but a few years of the Goodyear patent no
remains unexpired to bother the dentists. The Goodye
patent expires next May. Its last extension was a cryi
shame, but nevertheless we had to submit to it. The Cu
mings patent is as worthless as straw, and I trust we de
tists will respect it, notwithstanding it has been coupl
with the Goodyear patent in an expartee license contra
and its recognition enforced by the Rubber Company, up
the dentists. The Cummings patent applied for, and issu
long after the general introduction of rubber into the p
fession, has no claim whatever upon us; nor are all those
censes which we have been obliged to sign, at all expressi
in any sense, of any choice on our part, nor have we h
anything to say about a mutual contract but simply to
cept their terms or be deprived of the use of the rubb
On the principle of a highway robber, they have said to
"your money or you will be sorry." I think every dent
will regard his contract with the Rubber Company, as bi
ing as he would a promise to a highway robber, and I ca
not think he would respect it much more. A case
occurred where the Vulcanite Company immediately ab
doned their cause upon the filing of a replication in a s
where the Cummings patent alone was in question. I re
to the case of Dr. T. B. Gunning of New York,—and
wish that replication which is in point, might be publish
in the dental journals. It is a very able defense, covers
whole ground, and gives the Cummings patent no foun
tion in fact, to stand upon. No doubt a shrewd plan
getting each and every dentist committed for a year or
will be introduced by the Rubber Company, at the co
mencement of the new year, although they well know th
have but four months or so wherein they can make a
valid claim upon us. Let each decide what he will do

fore the new year comes in. Many can relinquish the use without doubt, for that short time; all ought to use freely after the expiration of the time, without any royalty to anybody.

It will be wise to have a fund to try this issue with the Rubber Company—if they see fit to press the matter—by a combination of the dentists, which will have every prospect of success if there is any justice to be had.

Respectfully,

ONE OF THE PIONEERS IN DENTAL RUBBER WORK.

ARTICLE III.

American Dental Association.

FOURTH DAY—*Morning Session.*

Called to order by the President.

Resolutions instructing the Treasurer to notify members of their dues, and also instructing the Corresponding Secretary to notify standing committees of their election, were passed.

Dr. Goddard offered an amendment to the constitution similar to that rejected the day previous, allowing the time of meeting to be annually fixed. Laid over.

The Committee on Nominations made the following report, which was subsequently adopted,—and the committees so constituted:

Dental Physiology.—J. H. McQuillen, M. S. Dean, C. F. Wheeler.

Dental Pathology and Surgery.—Homer Judd, W. H. Atkinson, C. Stoddard Smith.

Dental Histology and Microscopy—R. W. Varney, J. Taft, W. W. Allport.

Dental Chemistry.—D. S. Dickerman, H. A. Smith, J. J. Birge.

Dental Therapeutics.—W. L. Sage, J. C. Walker, W. N. Morrison.

Operative Dentistry.—C. E. Francis, E. A. Bogue, Wr
Dutch.

Mechanical Dentistry.—I. A. Salmon, F. Hickman,
H. Smith.

Dental Education.—A. B. Robbins, C. C. Chittende
J. N. Crouse.

Prize Essays.—Geo. A. Mills, E. Floyd, R. Huey.

Etiology.—W. A. Bronson, L. D. Sheppard, G. R. Thoma

Dr. Taft favored the appointment of a committee who
duty it should be to go at the solicitation of the professi
to give clinical instruction. He thought the associati
ought to initiate and carry on a work of this kind. Indi
iduals are constantly receiving invitations to go to vario
places, and their expenses or more are tendered. It wou
be better for them to go under the auspices of this societ

Dr. Dutch coincided with the views of Prof. Taft. Tl
plan had already been proposed on the Pacific coast Tl
expenses ought not to be borne by the association, but l
the parties benefitted.

Dr. Dickerman also endorsed Prof. Taft's views. If th
action is not taken by this body, it will be by some oth
body.

Prof. Taft then moved that a special committee on Loc
Societies and Conference with the Profession be appoint
by this body.

Carried, and the following committee appointed :

Prof. Homer Judd, St. Louis, Mo.; Prof. J. Taft, Cinci
nati, Ohio; Prof. W. H. Atkinson, New York City; Pro
L. D. Sheppard, Boston, Mass.; Dr. Wm. Dutch, San Fra
cisco Cal.

The report of the Committee on Etiology, by Prof. Cutle
was then read by Dr. Taft. The following is a synopsis
the report.

Etiology was defined to be the science of causes; dent
etiology the causes of dental diseases. Causes always pr
cede effects. If a cause produces no effect, it is dorman
The causes of dental caries will be first considered. W

quote from Tomes, the best authority extant, but we shall endeavor to point out many errors in his conclusions. Tomes says two theories have been adopted: the first considered caries as a vital action, the result of inflammation; the second regarded it as wholly the result of chemical action. Fox endeavored to show that it was similar to osseous caries, and due to a separation of the lining membrane. Bell considers that it is the result of inflammation of the dentine. Mr. Robertson assumes that it is nothing more than chemical decomposition. The opinion of Fox cannot be correct, because there is no connection between the pulp and the inner wall of the tooth—other than nerve fibres. He could have had but limited knowledge of the anatomy of teeth. Nothing could be further from the truth than Bell's ideas. Robertson assumes that tooth substance is devoid of life, which is incorrect, though this is even now maintained by able men.

Tomes thinks that dentine loses its vitality from systemic causes, and then becomes a prey to the destructive agents. We all know better at this day; a tooth decays when the vitality is intact. The process is purely local and chemical, favored, however, by crowded teeth, lodging of food in the interstices, etc., which generates acid in decomposing. There are great differences in teeth as to resisting decay, depending on the relative proportion of animal and mineral components, and on constitutional tendencies. The slower the process of development, the more dense the structure. The condition of the mother during gestation influences the teeth of the child. Subsequent systemic changes alter the condition.. Bell thinks mercury is one of the remote cause of decay after the formation of the teeth. I accede to this to a certain extent. Hippocrates believed that cold caused decay; other authors, that it was due to an arrest of circulation by the pressure laterally. French writers of the last century believed in the local action of chemical agents to produce the result, as did Salmon, of London, two hundred years ago. It is said the Indians knew noth ing of bad teeth or debilitated stomachs till after the introduction of tea,—but it is more likely that the contact of civilization in general was ths cause. Dr. Mitchel demonstrated, in 1796, that caries was due to an acid in the mouth. Harris says acetic, lactic, and other acids have been detected in the saliva. Donne says that the saliva is normally alkaline, but the mucous secretion acid. Harris says that Dr. Parmly, about 1821, first promulgated in this country the doctrine that decay was due to external agents. Prof. Westcott, in 1843, proved that all the acids act readily upon the teeth. Harris asks how, if caries is always due to external agents, does it sometimes commence within? I answer that it never does. Its attacks are always external; but it may be gradually going on without external sign. Tomes says all carious cavities are circumscribed by a zone of consolidated tubuli, varying in different specimens; all the tubes may be filled or only a portion of them. This is analogous to that condition in the soft parts which circumscribes inflammation by consolidation of the surrounding tissues. It retards the advance of decomposition and protects the pulp from irritation. It is like an army falling back gradually, constructing lines of defense and holding each as long as possible. I am not able to see the point in his comparisons. It would appear that he regards the tubuli as unoccupied channels through the dentine, which I am not prepared to admit; if it were true, what causes sensitiveness? The tubuli are, no doubt, filled up to a certain extent, but the material is necessarily derived from the secretions of the mouth becoming hard by dessiccation, and like tartar preservative of the dentine. I regard the process as a molecular one, independent of vitality.

When decay attacks dentine, there is an invasion into vital and mineral tissues which have before been under vital control alone, by vital and chemical agencies combined. When decay is established, the part is under a chemical control alone; it overcomes all resistance by satisfying affinities that are stronger than the vital force. It is true tha the greatest density affords the greatest resistance to decay; but want of density signifies imperfect development; as the animal per cent. is about the same in all. Prof McLain says the chemical theory being now generally admitted, the physico-defective theory can be considered only as one of the proximate causes. Imperfections favor decomposition only by affording lodgment to foreign matters which are converted into an acid product; or acids already formed may be taken in; which, often repeated, produces decay. I fully concur in these views. Maury says authors have never agreed as to the cause of caries; some have regarded it as hereditary; others as necrosis; and others still as among the ulcerous affections. We believe it is due to external and internal causes; external being blows, contact of cold and hot substances, or acid drinks; malformation, lateral pressure, malaria, mercury, uncleanliness, and irregularities. He enumerates internal causes, which have already been mentioned. Fitch says a vitiated state of the saliva is the first general cause. Lead, tin and copper are soon dissolved in it, and gold when scarcely acted on by nitric acid is tarnished; ivory soon decays; and it is not strange that teeth are also acted upon perniciously. Uncleanliness vitiates this fluid; decaying food, decayed teeth or roots, etc. In summing up, we say that decay of the teeth is dependent on violations of physiological law. Some of the foregoing opinions are erroneous, owing to the fact that there has been no established canon for the profession to be governed by; every one had his peculiar views. The most modern, and in the opinion of the committee the nearest true, if not the true cause of caries, is the chemical theory of an acid action as the only direct local action. The effect is the same, however the acid may get into the mouth, depending, however, upon the condition of the mucous and digestive appendages. Modern civilization gives evidences of violated law, which not only causes decay of the dental organs, but also other pathological conditions which are suicidal, by shortening the natural term of human life.

The report of the Committee on Operative Dentistry was then called for, and was read by Prof. Taft.

The report proposed merely a statement of a few points. That of last year was very comprehensive, embracing all points of interest up to that time. Progress is being made, not alone of a mechanical character, but there is a growing domination of science over art, of principles over manipulation. Though there are no startling facts in reference to modes of procedure in operating, forward steps are being made.

There is a far greater disposition to adopt new processes, which is instanced in the increasing use of the rubber dam, a knowledge of the use of which carries with it a conviction of its utility, and usually its immediate adoption.

There is a growing disposition to use great care and thoroughness in the operation of filling. The object is not attained without a careful attention to every step; an imperfect link involves a broken chain. We suggest that the profession strive to come up to attainments already made.

The use of glasses is recommended, as tending to reveal imperfectons and irregularities which by the unaided vision will escape observation. Their discriminating use will be of benefit to every one, and will not be injurious to the unimpaired eye, as is often supposed.

In the use of foil some change has been suggested, viz., the use of smooth and polished points for its introduction. It is claimed that these may be substituted for serrations in all cases, even in building up crowns, and that the results are much more perfect. However this may be, it is quite certain that by the proper use of such points, foil may be thoroughly welded. It is claimed that with them the gold will expand more, and thus be more perfectly adapted to the walls, with less liability of injury to the latter. A frequent cause of failure is the injury done to the margins of cavities. The occasional use of these points was adopted by a few persons two or three years ago, but their exclusive use has been only for a few months. A claim to this use has been made by three or four persons, but no one has been so enthusiastic in their favor as Dr. A. A. Blount of Springfield, Ohio. The introduction of a change like this will not be rapid, even though it is found to be a step in advance. The use and proper place of heavy foils is more definitely ascertained than at the time of the last report. A few use them exclusively, but the majority employ them after the cavity has been chiefly filled, to form the surfaces and borders, for which purpose they are better adapted than anything else. It is stated that No. 480 can be used; its practicability to any extent, however, is doubtful, although from six to ten thicknesses of No. 60 can be easily and thoroughly welded,—but the laminæ must be kept free from folds.

For non-metallic fillings, Guillois's cement seems to possess greater hardness than any of the kindred preparations, and many operators employ it as a permanent filling. Its efficiency for this purpose, however, is not sufficiently demonstrated,—but as a foundation for a gold filling it is very valuable. It is probably allied to oxychloride of zince.

The machines for excavating cavities and finishing fillings have been much improved since the last meetings when their utility was a matter of doubt. Now, in two of them such is the perfection and efficiency, that a first view carries conviction of their usefulness, and they are now regarded as indispensable to the most thorough and rapid execution of the operation of filling. Improvement is taking place in every department of human activity, and we cannot venture to assert what is in store for us, or what shall be brought to us upon the great tidal wave of progress. We can, however, admire, appreciate, use and rejoice in all the blessings already bestowed upon us.

Dr. Atkinson. If the concepts of the mind in attempting to understand our practices are foundlings, we are much in the dark.

Prof. Judd. I have experimented with smooth points, and cannot work quite as well with them as with points slightly serrated, because if the instrument is not placed perpendicular it is a little apt to slip. If it is a sharp-edged instrument, the same office is performed by the serrations. I have used planishing points, and can work very well with them. I have used platinum foil a little. That used was heavier than ordinary gold foil. It is coated with gold foil to secure the adhesive property. A filling made of it looks like a gold filling before finishing, but after finishing presents a mottled appearance.

Dr. Atkinson. I endeavored to get platinum foil beaten in 1845, but never succeeded until within a year. I thought that platinum, osmium, or some of that group ought to be capable of use in this way. I still feel that if we have pure platinum rolled, it will weld. I have used a thickness corresponding to No. 120, which makes the best filling. As to points, I use the egg-shaped planishing points. Welding is the annihilation of space between particles. If we understood the laws of impact and welding, we need say nothing about these matters. Not one per cent. of practitioners understand the proper preparation of cavities—to prepare the cavity so as not to expose the pulp; then so that the gold may be mechanically retained. Don't be afraid of cutting too much. I don't cut enough myself, and I am called heroic. Little fissures are too often left. Cut freely and largely, and don't do any of this "*that'll do*" kind of work. Do not remove the decayed bone and expose the pulp. Nature has built that house; don't pull it down. Cut to solid tissues around the wall,—saturate with thymol, which says, Peace, be still, to all the little devils in there!

Dr. McQuillen spoke of the importance of a thorough examination of the teeth. It cannot be done with the naked eye, but demands the employment of magnifying-glasses. The professional man should be paid for his opinion, which it costs him time to give. A microscopical opening may lead to an extensive cavity below, and he would impress the necessity of using magnifying-glasses. He spoke also of the matrices proposed by Dr. L. Jack for approximal fillings as of great value; simplifying the operations, and rendering success in such cases more certain than without them.

Dr. Taft referred to the use of glasses upon the eye. He used two pair of glasses at once, but as a substitute had constructed a pair with a lens attached at one and a half inches distance; is much at a loss without it. It is common to suppose that tne use of glasses impairs the eye, but our best oculists concur that there is no objection to the use of glasses on the unimpaired eye. The microscpe may be used for a lifetime without detriment—the eye-glasses of the watch maker are so used. The sight has been improved in his own case in the eye to which this glass has been fitted. There is a want of precision in trimming the borders of cavities without glasses. They should be used constantly.

Dr. Francis. We cannot make our examination thorough without glasses. I always advocate cutting out fine fissures. It is dangerous practice to cut to the pulps. What better covering can we have than the natural one?

Dr. Crouse does not lay quite as much stress on glasses as some do whose sight has partially failed. Thorough examinations are necessary, and the rubber dam should be applied for this purpose; also, free separation should be made by wedging, so as to be certain in regard to decay.

Dr. Morgan endorses all that has been said in reference to thorough examinations, also as to cutting out fissures, especially in molars; has used the magnifying-glass for many years. It is fair to presume that partially decayed matter is not dead; it is certainly tolerated. Heavy foils can be planished down very perfectly.

Dr. McQuillen. It is impossible for any one to see small objects with the naked eye as with a magnifying glass. Engravers have used such glasses for ages.

Dr. Francis endorses what has been said in reference to the dam. Glasses include mouth mirrors, and even these he believes are not often used. He spoke of a cavity which externally gave no signs of its presence, except that there was a slight seam on the grinding surface, and the tooth was a little opaque, which being investigated, led to an immense cavity approaching the pulp.

Dr. Atkinson. No human eye unaided has yet detected tissues, or any of their individual elements.

Dr. Dickerman used smooth points four years since with little pressure, and latterly fills mostly in that way, and makes better fillings than with so much pressure or with the mallet.

Dr. Dutch claims that some persons have better eyesight than others; mentioned a gentleman who could see fine cracks in the enamel with the naked eye, where only a glass of high power revealed them to others. He cuts out fissures well.

Dr. McDonneld endorses all that has been said; has not yet arrived near perfection in making examinations; endorses the dam and magnifying-glasses fully. Fissures can be discovered with the glass which cannot with the eye alone—even with the best eyes. We are not thorough enough in cutting down weak walls and following out fissures.

Dr. Walker thinks we come to the conclusion every year that last year we did not know how to fill a tooth. He would not continue practice without the dam. The power of the best eyes can be extended by glasses. Fissures will often lead to an unsuspected chamber.

Dr. Salmon. Any one who acknowledges the use of the microscope will acknowledge the use of glasses. He mentioned some one who is in the habit of using ivory points, and commends trying the method in crown cavities which are accessible.

Dr. Crouse explained that he thought in many cases glasses were desirable. When you can't see with the naked eye, be sure to use them.

Dr. McDonneld spoke of the use of the rubber dam. We should not condemn it for want of skill in its use. He had failed, and abandoned it, but afterwards tried again and succeeded.

Dr. Judd called attention to the word approximal which is often used. There is no such word.

The Committee on Mechanical Dentistry was then called and Dr. W. N. Morrison made a report.

The report stated that the committee were unable at the time to present anything of practical benefit which had not already been noticed in the dental journals. The different styles of work stand in the same order that they have for years, continuous gum and gold being at the head of the list. The so-called cheap materials, rubber, celluloid base, pyroxyline, porcelain base, aluminum, and the alloys of tin, have each their advocates, but upon the superiority of either we are unable to agree. The committee were inclined to believe that the demand for these cheap bases is occasioned by the want of teeth in proper variety and form for gold work

Dr. Walker, from the same committee, recommended Watt & Williams' metal as the best substitute for rubber that we have now. Had not tried collodion.

Dr. Floyd, from the same committee, prefers gold to everything else, uses a little rubber in temporary cases; cannot consider it equal to gold; has used the cheoplastic metal, but does not approve of alloys.

Dr. McDonneld found that black rubber would cure a congested condition of the mouth. Gold and continuous gum are the best; cheap things are dear.

The Committeee on Dental Education was then called, and Dr. Atkinson read a report from Dr. Mills, Chairman.

The report stated that every avenue was teeming with the spirit of progress; the associated effort has done a noble work, not so much in the older localities as over the whole land. How shall we best extend the resources of dental education? We have a right to expect much of those who stand out as representative dental educators. Gentlemen, speak out of your convictions, the fruit of experience and of toil. Tell us, must we go deeper, ere we can safely go higher? Do we need to divide, regulate, separate, that we may better understand our work? What is our mission? Do we answer, as one man, it is a God-given, a God-loving one? Or do some among us call it a mission of dollars and cents? Our mission is of God. We are to repair the ravages of this disintegrated structure; shall we attempt to repair without knowledge of that structure? Tell us what we need to understand, that we may think and know for ourselves. The associate element has proved itself the great auxillary in dental education; it brings us into a receptive condition; mellows the soil of our nature, and lets in the sunlight of brotherly love. Association is to us as the plow in the tilling of the soil. May those attending this body go out to be known and read of all men, that they have been with truth and learned of it. The rudimental teachings have been and will be received in the dental office. No dentist or faculty should encourage an applicant to enter a dental school before spending a year or more under private teaching. The dental schools are doing a noble work; they show an increased tendency to meet the demands of the times. Whether they are meeting these demands is a question seriously agitating the minds of many. A combination of the best ability of our profession should now be made, and this United States be the proud possessor of an American dental university—not to substitute the dental schools, but to meet the higher demand that is upon us. Would to God that this noble profession might be the first to throw out to the millions the motto—"Obedience to the truth."

Strip us of our meaningless titles, attacked so freely; because of the freedom with which they are dispensed they are become a stench to all true lovers of the truth. These words, spoken in sorrow, are the truth. With all the worth of the schools, they are terribly deficient. The responsibility must rest chiefly on the faculties; they have the power to reject unfit applicants. It were better to lessen the quantity and better the quality. Furnish first-class teachings, and you will secure first-class pupils. Schools need encouragement, and also to be shorn of much. We see much to admire, and much to regret; some things are clear, much is misty. Yet in view of all their deficiences, if we turn to the past, the comparison renews our spirit. But a few years back there could be found in New York dentists who denied to their students the use of books; and in one instance, a work in the possession of a student was obtained by theft and committed to the flames. And this not among quacks or "gutter dentists," but among those who walked in high places. Education teaches knowledge of obedience to law. We are groaning under the penalty of a broken law. We are crawling backwards to reach the bottom of the ladder. It requires courage to go down, and also to go up. Let us strip ourselves of old dogmas, and search only for the truth. Those who apply for admittance must be impressed with the necessity for certain qualifications. There are found in all our schools those who possess hardly a scintilla of the requisites in the specialty they are seeking —some have not the first teachings of the common branches. Ask the classes admitted each year what they seek, and nine tenths of them will say "a business." Our sense of need must first be felt. That inspiration is the beginning of all knowledge, is as true as that God exists. We will find the bottom if we let go. If the descent is rapid, the return to light will be so too. We shall bemean ourselves if we seek for anything less than the highest and best. Some may ask what this has to do with dentistry; some, too, accept these standards and nothing less. The signs of the times indicate all that the pnrest desire can wish. The nations are crying out as much for prevention as for cure. As we are more fully educated in the principles, we more fully understand the preventive remedies. The dentist must be educated to be more than the so-called dentist; he must be a dental physician—able to deal with all the conditions of both health and disease. Nothing short of a medical as well as dental education is the demand of the hour. That there will be differences among us is not to be wondered at;

but it is possible that we be of one spirit—"whereto we have attained, let us walk."

Of our journals, it is far from the truth to say that they are what they should be; yet we should be grateful that they are as much credit to the profession as they are. The periscopic method is on the increase with all the journals, with a decided advantage to the readers. All who have ability should feel it a pleasure to contribute to them, without fear of being rejected. The dentists who associate are readers; none can read the journals without profit.

Instruction by clinics has, during the year, showed marked increase. The associations have observed them at their gatherings with profit; the schools have given them increased attention; and, as a new feature, public clinics are held by the First District Dental Society of New York, under the direction of a committee, in the rooms of S. S. White's Dental Depot, each Wednesday. A record of all operations is kept and reported to the society. The attendance of a large number of dentists from all parts of this and other countries has been secured. The Brooklyn Dental Infirmary has been established by the Brooklyn Society, and is believed to be the first and only one of the kind. Clinics are also held here each week. It has grown to its present proportions at no little sacrifice of time and money, but those who have participated have reaped a rich harvest. The best method of reaching the public has yet to be determined. Some individuals have made efforts,—with how much encouragement is yet to be made known. Let us impart in a true spirit of liberality, and let our communications be yea, yea, while in the light, and nay, nay, when darkness presents itself. So do, and further generations will rise up and call us blessed.

(*To be Continued.*)

ARTICLE IV.

Hemorrhage Following Extraction of a Tooth.

BY S. P. CUTLER, M. D., D. D. S.

A case in March 1871, a young man, a creole about 24 years of age, called for the purpose of having a left lower molar extracted and wished to take gas. I gave him a dose as usual from the beexy, and proceeded to business in a surgical way or rather unsurgical way. My forceps having been selected previously, though not just such a one as I wished, the mouth propped open with a bottle cork with a string tied to the end of it to prevent swallowing—which accident has happened, I adjusted the instrument, in a hurry, as is usually the case when gas is used, and proceeded to pull, and my instrument seeming to loose its hold in some way, and my patient apparently coming to, I hurried matters up rather too rapidly I suppose, and instead of pulling one tooth I pulled two, the right one and a wrong one, the wisdom being the wrong one, which was lifted nearly out of its socket so that I could remove it easily with my fingers, but instead I pushed it down back into its place, although my patient was aware of the true state of the case and left it with me to decide. In some way my forceps' outer beak had slipped off from the tooth and passed between the two teeth while the inner beak remained in position; this being the condition of things when the teeth gave way, a piece of the alveola between the teeth also having been pulled loose which afterward came away, but not known at the time. After a short period the patient left, after some directions concerning the replaced tooth.

This was about 11 o'clock, and in about three quarters of an hour he returned accompanied by his mother and a sister, the patient spitting up large quantities of blood from the socket. We resorted to astringents, such a persulphate of iron first, and waited for a time, still no abatement of the hemorrhage, the blood flowing copiously. The next thing devised was plugging the sockets with cotton saturated with styptic colloid, this like the first did no good whatever, as the cotton continued to rise up out of the sockets. Next waxed cones were tried for plugging the sockets and the upper teeth closed upon them, still no abatement; several trials were made in this way none of which done any good at all. After this, various astringents were tried all in vain, and by this time some confusion and excitement prevailed, the friends becoming somewhat uneasy as well as ourselves. During the multitudinous trials of various astringents the mouth became perfectly black by the incautious use of Monsel's solution and tannin in succession, without our thinking of converting his mouth into an inkstand at the time, which at first increased the alarm of the family, who by this time had arrived consisting of eight or ten persons in all; the explanation seemed to be satisfactory.

Next thing in the programme was to make a plaster cast of jaw and sockets as a hemorrhagic splint, but all to no purpose.

The blood flowed if anything faster. Next resort was to try a gutta-perch cast and splint, with no better result, astringents being used in conjunction until all the most powerful known had been tried in vain. Darkness came on adding to our confusion. About this time or shortly after dark, the old lady had a regular nervous spasm or fit which increased the fears of our patient still more. Thus matters went on until about 8 o'clock when I began to loose hope and confidence in our ability to staunch the blood at all, as every kind of pressure and all kinds of local remedies had proved a humbug and failure. We then seriously discussed the propriety of the actual cautery. Long before this time the replaced tooth had been removed with the thumb and finger. Things began to look gloomy in the extreme, and what more could be done. One last resort more, I had thought of nitrate of silver but did not have over-confidence in it, as I had sometimes failed with it. I plunged a stick deep down into the sockets alternately as a forlorn hope. The blood ceased almost instantaneously and never bled any at all after that. On the patient attempting to leave the operating chair with help to go to the sofa he fainted from loss of blood, having lost in our estimation at least half a gallon, or perhaps more. Just at the close of our manipulations his family physician arrived, and escorted him home in a carriage to our joy and great relief.

I had begun to think our patient a doomed man. I am now unable to account for the persistent hemorrhage, as there was no undue laceration of the parts. It is not likely that the gas had any agency by its action on the blood. There was no indication of a hemorrhagic diathesis, his temperament being nervo-bilious, the former predominating. The question is, would this hemorrhage have taken place from the extraction of one tooth only and no injury to the bone? I have before had persistent cases of hemorrhage, but not to compare with this one. I can say in confidence that this was the first and only time I ever extracted a wrong tooth during a long time of practice, and this would not have happened without the use of the gas. In hurrying I made a regular *faux pas*, an unpardonable blunder, an irreparable one in the loss of a good tooth to the patient.

I use gas still, but believe it to be a great humbug, one of the greatest of evils so far as dentistry is concerned, or any other anæsthetic used in dentistry. Multiplied thousands of teeth are annually sacraficed by its use that without it might be saved. Gas and cheap rubber plates are the order of the day, and no one can stop the tide. Perhaps none of my readers ever committed any such blunder in their practice. I sincerely hope that none of them ever did or ever will, if so they have my sympathy in full.

ARTICLE V.

Eastern Ohio Dental Association.

An adjourned meeting of a preliminary organization for the purpose of forming a Dental Association was held in Canton on Tuesday, August 29th, 1871, in Dr. J. H. Siddall's rooms.

Dr. Lyder, of Alliance, in the chair.

Dr. McLain, of New Lisbon, chairman of committee on constitution and by-laws, reported having procured a copy of the constitution and by-laws of the Northern Ohio Dental Association, which were adopted with some alterations; the name adopted being "Eastern Ohio Dental Association."

The following officers were elected for one year:

President, Dr. S. C. Whinery, of Salem; Vice President, Dr. J. W. Lyder, of Alliance; Secretary, Dr. D. B. McLain, of New Lisbon; Treasurer, Dr. A. J. Douds, of Canton; Examining Committee, Drs. J. H. Siddall, of Canton, J. M. Porter, Massillon, and C. M. Richmond, of Garrettsville.

Convention adjourned for dinner, and were hospitably entertained by Dr. Siddall, who evidently knows how to take care of the inner man.

After dinner the following dentists were present:

J. H. Siddall, Canton, T. J. Barclay, Columbiana, L. A. Hole, Salem, W. A. Porter, Dalton, J. M. Porter, Massillon, C. M. Richmond, Garrettsville, J. W. Lyder, Alliance. D. B. McLain, New Lisbon,—Craig, Canton.

There are no members belonging to the Association yet, as all must pass an examination and be recommended by the examining committee who report at next meeting the names only of those found worthy.

Dr. J. M. Porter read a very able paper on the pathology and treatment of alveolar abscess. The subject was then discussed by nearly all present.

The subject of filling with smooth pointed instruments was next discussed, Dr. J. M. Porter having performed a clinical operation of that nature in the forenoon.

The subject of specialties in dental practice was warmly discussed.

The following subjects were selected for discussion at the next meeting:

Anæsthesia, The Gums and their Diseases, and When is Extraction Indicated.

After passing a vote of thanks to Dr. Siddall for the use of his rooms and his turkey, the Society adjourned to meet in Alliance on the last Tuesday in February.

I omitted to state that Alliance is the permanent place of meeting, and the meetings are to be semi-annual.

D. B. McLain, Secretary.

SELECTED ARTICLES.

ARTICLE VI.

Amalgam Experiments.

BY S. P. CUTLER, M. D., D. D. S.

I took of good amalgam twenty-four grains and mixed with mercury, usual way, and expressed through buckskin to the proper dryness, then washed in alcohol and weighed. Thirteen grains of mercury had been retained. After two weeks, I weighed again and found a loss of two grains, the whole weighing thirty-five grains, a little less than half as much mercury as of silver and tin. The small amount of evaporation of mercury in thirty-five grains of amalgam is so insignificant, that no possible harm could take place by the use of even that amount at one sitting, which would be sufficient to fill several quite large cavities, though in some extreme cases double the amount or more may be used in one tooth, even then no danger of salivation need be apprehended in any subject.

By applying heat with the blow pipe the dry lump became soft and plastic, as when first mixed, only a little more brittle.

The chemical affinity betweed the mercury, tin, and silver, is very strong and not easily broken up, and is known as the law of adhesive affinity or that of wetting, which is explained in this way: Any liquid whose affinity or cohesion is greater for any solid than the cohesive attractions of its own molecules, a perfect solution of saturation takes place.

Again, any liquid whose affinity or cohesion for any solid is more than half what it is among its own molecules, simply wetting takes place, nothing more.

Any liquid whose affinity for a solid is less than one-half what it is among its own molecules no wetting takes place at all, as mercury and glass, porcelain, and many other solids, as mercury and bone or dentine demand. The reason why water and oil or mercury do not unite depends on this same law. The word adhesion and cohesion may both be used in the above explanation. This specimen softened by heat, and gave up the mercury, though rather explosively, so that I could not ascertain the final result by the blow pipe. In fact, this is a feeble fulminate.

Pure silver amalgam.

Twenty-four grains of pure silver filings combined with 28 grs. of mercury when expressed through buckskin as in ordinary use of amalgam in filling teeth. It will be seen that pure silver requires more than double the amount of mercury to amalgamate it than ordinary tin and silver combined.

Pure silver does not make a tough and tenacious mass, only slightly adherent. Washing with alcohol does not produce any dark color as in ordinary amalgam.

No loss or subsequent hardening takes place by standing for six days, weather hot. On applying heat with the blow pipe, light colored fumes began to pass off and continued to escape frequently in sudden gusts, and continued up to a red heat, at which temperature I kept it for a few minutes until all fumes ceased. It did not become soft and plastic at all, like ordinary amalgam, but remained hard during the process, becoming light yellow, and did not lose any of its cohesive properties by heating. There was a loss of twenty-four grains out of the twenty-eight of mercury.

Amalgam of pure tin filings.

Twenty-four grains of pure tin filings took up fourteen grains of mercury, forming a mass in all respects similar to ordinary amalgam: did not lose in weight by standing several days. Washing with alcohol produced about the same amount of dark matter as common amalgam. There was no subsequent hardening from the first melting on charcoal, for fifteen minutes caused no loss in weight, no fumes escaped. After cooling, the mass was found to be quite hard and tough, polished well, and pure white.

The probability is that amalgam would not harden sufficiently in the tooth to make a filling.

Silver coin amalgam, or almalgam of olden time.

Twenty-four grains of coin fillings, takes up thirty-two grains of mercury to amalgamate. After several days standing I found the mass hard and firm, had lost scarcely a grain in weight. On applying heat it did not become at all plastic, but remained hard. I continued the heat up to redness, for at least twenty minutes before the mercury fumes ceased passing off; on weighing, I found nearly all the mercury had escaped; the lump still remained hard and firm though more brittle than before applying heat.

Now the question is, what holds the filings together, when all but a trace of the mercury has been dispelled by heat? Washing with alcohol produced dark matter.

PURE GOLD AMALGAM.

Twenty-four grains of pure gold filings takes up fifteen grains of mercury to amalgamate. It instantly becomes white like pure silver amalgam; on standing several days there was no loss of weight, neither did it set or harden to any extent, in consequence it will not answer for filling teeth. There was no stain from washing. On applying heat with the blow pipe, up to redness, for five minutes, it became yellow and lost all the mercury and two grains more. The filings were not melted, and the mass much tougher than before heating. On melting the gold there was no more loss of weight, the gold apparently as pure, and worked as well as though there had never been any mercury in combination.

EIGHTEEN CARAT GOLD AMALGAM

Twenty-four grains of eighteen carat gold *silver alloy* takes up twenty grains of mercury to amalgamate. It does not become so instantaneously white as pure gold, neither was the white so intense.

On washing with alcohol there was scarcely any stain. After several days drying there was no loss by evaporation, the mass becoming quite hard and brittle: This amalgam will answer a very good purpose in some cases for filling teeth. I have had a filling of this kind in one of my back teeth, for five or six years, now pefectly sound, only dark on the surface owing to the silver it contains.

On applying heat to the specimen, and raising up to redness for five minutes, all the weight of mercury disappeared still leaving a hard firm mass, which takes a fine polish and has a golden color.

AMALGAM OF CADMIUM.

Twenty-four grains of cadmium filings amalgamate with forty-two grains of mercury, and sets or hardens almost instantaneously if quite dry, even without sqeezing through buck skin. On rubbing in the palm of the hand the finger becomes black, and on washing with alcohol about the same amount of dark matter is produced as in common amalgam.

On drying for several days it looses nothing in weight.

While rubbing up in the palm of the hand a considerable amount of heat is developed, I presume, from the rapid conversion of the liquid mercury into a solid, the latent force of the fluid mercury being transformed into sensible heat.

This amalgam is almost certain to destroy the nerves in all teeth filled with it, turning the tooth yellow and staining allthe balance at the line of the gum the same color. This yellow stain is the result of a yellow soluble oxide, the fillings remaining white owing to the solubility of the oxide.

The specimen lost one grain after several days drying. On melting on charcoal it does not evaporize or loose in weight, and melts at a very low heat, and remains fluid a long time and retains the white color.

After being melted it is very tough and may be hammered or rolled into a plate, and cuts easily with a knife. This amalgam may be found valuable for some purposes out of the mouth.

There are some dentists still using this amalgam to my knowledge for filling teeth. It should never be used in the mouth under any circumstances.

By heating cadmium sufficiently hot, yellow vapors of the oxide of the metal are formed. Mercury unites readily and hardens with this metal, but does not harden to any extent when united with any of the other simple metals experimented with. Why this is so, I am unable to say, unless it is from the fact that mercury and cadmium are the only two metals whose combining volumns of vapor are double that of any other elementary bodies. All good amalgams must be composed of at least two metals besides mercury. None of the above metals decompose water to any extent under ordinary circumstances.

I experimented with platinum and mercury, also aluminum and mercury, but found that neither of them formed metalic amalgams with mercury, only oxides of which I shall have occasion to speak sometime, under another head, more especially that of aluminum. This metal is one of the most selfish and unfriendly of all known metals, refusing to unite or form any metallic alliance with any other metal. This is a great and wise provision in nature's economy, this metal forming as it does the basis of most soils; the earth would be but a barren waste if this metal held strong affinities for other metals; when the earth was in a melted state alloys would have formed without end so as to have prevented its capacity for uniting with oxygen to form clays.

The metals suitable for amalgams are reduced down to three, silver, gold, and tin, mercury forming the amalgamating metal. Tin and silver make the best, silver and gold answer very well, gold and tin is too brittle and hard for practical purposes it does not harden at all when amalgamated; none of the other metals will answer as they would not stand in the mouth.—*Canada Journal of Dental Science.*

ARTICLE VII.

Neuralgia.

BY ALEXANDER WILDER, M. D.

From an Essay read before the Eclectic Medical Society of the city of New York.

Foremost among the ailments that afflict human beings in civilized countries is the pest formerly known as *tic douleureux*, but now denominated neuralgia. It has been known ever since Hippocrates. The complaint generally affects the first, second, and third branches of the fifth pair of nerves, and the *portio duro*, the left side of the face being oftener attacked, and the female sex more commonly afflicted. But persons of each sex will recognize it as a "mutual friend," and all parts of the body are subject to its invasion. We may have cerebral, cardiac, spinal, and ganglionic neuralgia. It is the defective nutrition, however occasioned, and an offspring of scrofula. We apprehend that it pertains almost exclusively to that diathesis. It is produced by miasmatic atmospheric changes, ozena, or catarrh of the head, bad teeth, imperfect digestion, mental excitement and anxiety, and other causes too numerous to mention. We have witnessed it supervene on an attack of schneiderian inflammation, and yield to an eruption of the skin, or on the appearance of a boil. It attacks the trifacial nerve oftenest, because it is the most frequently called into play of any in the body.

When the first branch of the fifth pair of nerves is affected by neuralgia, the complaint is usually denominated *sick headache.* When the facial portions are disturbed, the affection is *tic douleureux.* When the nerves of the stomach are assailed, the disease is *gastralgia* or *gastrodynia.* When the disease is in the nerves of the heart, it is known as *angina pectoris;* elsewhere it is named by the locality, as *sciatica, neuralgia mamæ, neuralgia pedis.*

The symptoms are very numerous, and would of themselves exhaust the patience to think of them. The principal are throbbing or lancinating pain following the course of the nerve, spasm of the eyes, involuntary weeping, anguish, despondency, confusion of ideas, desire for firm pressure on the head, which will suspend the paroxysms while it is continued.

A neuralgic patient is generally prostrated, and his will enfeebled by his sufferings; desiring others to will, think, and act, without troubling him. A crazy person is often mischievous and malicious, but the neuralgic patient never is.

In the month of March, 1847, the writer was returning from an excursion into Cayuga, Cortland, Chenango, and Madison counties, of this State, when he was attacked with violent pain in the upper jaw on the right side. The cause was periosteal inflammation at the socket of a bicuspid. He had suffered from it before, obtaining relief by a mode of surgical treatment purely original with him. This time he decided upon the removal of the tooth. The pain of the operation was unusually severe and protracted, owing to the inflammation, and the fang of the tooth was of a dark brown tint. Regarding this as the last of his troubles, he neglected taking any special care of himself, and soon became involved in several matters of perplexing business, by which his mind was much distracted and exercised. A relative wishing his aid, he employed himself for several days in work in the woods, sawing logs. The weather was cold, and snow covered the ground. A heavy storm finally set in, and it was not long before he was compelled to desist from his work and take care of himself.

The only medical adviser at hand was my brother, then a student. He declared it a case of influenza, which was then epidemic. I differed from him, and expressed the opinion that it was neuralgia. My conviction was intuitive. It occurred to my mind to say so as he was speaking; but there was not long wanting a heavy pain in the left temple, which steadily increased in intensity, and removed every doubt as to the nature of the malady.

Being partial to water-cure treatment, I wished to employ it; but was over persuaded. My brother gave me a Thompsonian "course of medicine," to which I was repugnant. It gave no relief, but seemed to add to the agony, which had now become excruciating. Lobelia, in "broken doses," afforded some mitigation. The remembrance of that week even now makes me shudder. Every instant as the arteries pulsated, the terrible pain throbbed along the left facial nerve; the ear became deafened, and the left eye, flowing copiously with tears, was presently inflamed as from the sting of a bee. There remained only the consciousness of my own agony. Weary days and sleepless nights were appointed to me.

The roads had been blocked up by the storm, and it had not been practicable to obtain medical advice. A physician, Dr. A. Wood, finally was summoned and managed to break his way to the house. My first appeal to him was inspired by my torture. I entreated him not to burn me up with capsicum, and he obeyed my wish. I apprehend, however, that he found my case a stubborn one; or that I was too much worn down for very acitve treatment. He was a man who would err only on the safer side. He administered an anodyne, which for a short time mitigated the pain. But his other medicines for the next twenty-four hours, failed utterly. The most important ones were not administered promptly as he had directed, and it may have been that there was difficulty in arousing the functions to proper activity.

I remember well one of those fearful nights. I had lost the clear perception of my identity, and imagined myself to be another person, an outcast, in a wilderness, perishing, and at the last extremity. A few faithful ones, I found, were by me, who had forsaken the society of men to share my exile and alleviate my condition. Gratitude for their fidelity was now active in my mind, and regret that I could make them no adequate compensation. But I besought them, as I bade them a last adieu, to take from me whatever valuables I had; for nobody would henceforth care for them as they had cared for me. And all the time that terrible pain darted, every moment, over my temple into the eye and jaw, each throb seeming more fierce than the one that had just preceded. The day finally dawned and I recovered my right mind.

Those six days and nights passed over my head—days and nights of sleepless, unremitting agony. The medicines had accomplished no satisfactory results. The physician redoubled his endeavors. Apocynum was his principal medicine. The throbbing began to lessen in severity. Success was obtained at last, and I slept. Very tedious was my convalescence. For many weeks I was tormented by a stinging sensation along the tract of the affected nerve, which I relieved by binding snow upon the brow and left side of the face. At length a boil appeared on the forehead and when it had discharged its contents the complaint seemed to have passed way. But for many years the sense of hearing in the left ear was greatly benumbed. The track of the nerve was callused, and there was also a blur on the left eye, to keep fresh in my mind the remembrance of that terrible week, and almost to writhe again with its fearful torment.

Subsequent attacks occurred in 1853 and 1856, the former of which was relieved by Dr. H. H. Cator, a homœpathist, with sulphur and kalmia latafolia, and the other by vigorous treatment with opium, chloroform, and brandy.

This complaint occurs most commonly with persons of asthenic condition, or whose powers are broken by advancing years, or who are subject to attacks of rheumatism. Individuals living in a marshy district are liable to it, and, curiously enough, it is there most successfully managed by treating it like fever and ague. Sulphate of quinia, bromide of potassium, and even arsenious acid will control the manifestations. Indeed, medicines of which chlorine, iodine or bromine is an element have been found very successful in neuralgia. Aqua regia or chloro-nitric acid diluted has been regarded my mamy as specific. The old school practitioners have depended on calomel, itself a chloride; although, as Watson shows, and as we have found in other diseases, the sal ammoniac was equally beneficial.

Mr. Abernethy was generally most successful in treating it by directing his attention to the condition of the stomach and bowels. It was his impression that neuralgic patients had a disordered nervous system and morbid condition of the digestive organs. In his peculiar manner, he used to say, "The two are the common parents of a numerous progeny of very dissimilar local diseases. In tic douloureux you must seek to put the digestive organs right, or to soothe the nervous system, according as the one or other may seem to be the principal and primary cause of the disease. Take away one of the parents and there will be no more propagation."

It is far better to use sedatives than to suffer the terrible pain; but there is a more excellent way. Abernethy was right. The disordered condition of the nervous and of the digestive systems occasions neuralgia, catarrh, influenza, and kindred maladies, having different names, are also thus caused; and they all are prone to run into neuralgia. One mode of treatment will cure them all. Relieve the alimentary canal of its contents by apocynum, rhubarb, compound stillingia alterative, or other mild cathartic, adding the bi-carbonate of soda to the medicine; and follow this by a tonic—sulphate of quinia, salicin, some preparation of cohosh, golden seal, or cypripedium, or whatever tonic is acceptable to the patient. Let special pains be taken to get the skin into healthful activity, as this of itself will remedy the entire evil. Much exercise in the sunshine is also important. Neuralgic patients are too much in the shade and in miasmatic, scrofula-breeding atmosphere. The hydrate of chloral is the modern panacea; but it should not be given till carbonate of soda or other antacids have assured a fit condition of the stomach. In acid conditions chloral is often almost inert.

There are scores of remedies as efficient what have been here suggested; and a good physician needs to know them all.—*Am. Eclectic Med. Review.*

ARTICLE VIII.

Case of Facial Neuralgia.

BY JOHN MCSHEEHY, M. D.

D. C., aged 42, applied to me June 17th, 1871, suffering from paroxysms of severe pain, mostly of a plunging lancinating character, shooting in the course of the facial nerves and extending under the molars of the left side. He had felt no trouble in the superior maxillary of that side. The patient had applied for medical treatment four years previously in Montana Territory, and again in New York, without obtaining any relief. He had tried all known remedies without success. Visited Boston to see his sister, and called on me as before mentioned.

On making an examination, I found that three molar teeth had been extracted by advice previous to his arrival. A spongy state of the gums existed, with a slight ulceration and fœtid breath. Paroxysms of pain occurred every ten or fifteen minutes, preventing sleep. When he became overpowered by sleep he was at once awakened, and started up screaming with the severe pains.

A faithful use of cinchona, iodoform and ferri valerianat. caused some general improvement up to the 30th of June, at which time I commenced subcutaneous injections and also the employment of hydrate of chloral, without favorable result. The following lotion was also employed, but without avail:—

℞. Ætheris sulph., ʒ ij.;
Chloroformi,
Tincturæ opii,
Olei terebinthinæ,
Tincturæ capsici, aa ʒ iij.;
Extracti belladonnæ, ʒ i. M.

No ease was obtained from any liniment or medicinal preparation whatever. I made an examination of the teeth and gums on the 2d of July, and found what I had supposed necrosis of the alveolar process of the superior maxilla on the left side. I recommended extraction of the diseased bone, as I thought, an opinion I had formed because the apparent sequestrum was above the alveolar process. I consulted with Dr. Dan'l G. Harkins, surgeon dentist, of Tremont Street, and we concluded to extract what appeared to be the necrosed bone, but which, on extraction, proved to be a dens sapientia covered with a fleshy bulb and imbedded in the superior maxilla. The tooth had pressed on the trunk of the infra-dental nerve in its course, and had caused pain of the most excruciating character, which the patient had referred to the lower maxillary bone.

Since the wisdom tooth has been extracted he has not had a single paroxysm of pain, with the exception of one or two momentary flashes. He feels well and free from pain, and has slept sounder since than for four years previous, and intends to return to Montana Territory to resume his mining operations.—*Boston Medical and Surgical Reporter.*

ARTICLE IX.

Temporary Teeth.

BY CHAS. E. KOCH.

Read before the Chicago Dental Society.

(CONCLUDED.)

J. Tomes has also used the tubercle on the lingual surface of the lower jaw to which are attached the genio-glossus and genio hyoideus muscles, as starting points for measurements. According to my experience, these tubercles are so little prominent in the fœtus, or newly born child, and with children, and especially with adults, so different in form, size, and height, that the value of such measurements must appear very doubtful, especially as here small measures are of interest.

Measurements taken from the dental arch from the line of union of the jaw, and over the necks of the teeth along the alveolar border, and over the necks of the teeth to the posterior side of the cervical portion of the second molar; resulted, for half the deciduous arch, in from 32-34 Mm, and in the arch of the permanent teeth, to the same peripheral extent, in from 32-37 Mm. Hence, in many cases, the measurements of the deciduous denture agrees perfectly with the corresponding section of the permanent one, yes even the former measure may be found to be larger, but frequently we find an opposite difference.

In the same manner that the new layers of bone of the growing arch of the lower jaw are deposited upon the facial wall, and resorption progresses upon the lingual wall of the same, is the growth of the posterior portion of the arch accomplished; new layers of bone are deposited upon the posterior side of the ramus and condyloid process, while on the anterior side of the condyloid and coronoid processes, bone is absorbed.

G. Humphrey has proved this experimentally. He introduced wires in the middle of the ascending ramus of the lower jaw of pigs, or nearer to the posterior or anterior border, and ascertained that, after a lapse of a certain time, the anterior loop was entirely free, while the posterior one was buried deeply in the posterior portion of the ramus. Something analagous he thinks occurs in the upper jaw, and upon the whole he agrees mainly with the opinion of J. Tomes.

If, then, the spaces occupied by the anterior ten teeth of the permanent set, and the teeth of the deciduous set are equal, the position of the former cannot be affected by the premature extraction, or loss otherwise, of the latter, unless contraction of the jaw at the vacant place occurs. Does this happen ? I know of cases in which the deciduous upper central incisors become quite loosened in consequence of complete absorption of their roots and were extracted. Their sucessor did not make their appearance for a year in one case, and nearly eighteen months in another, yet they found ample room, though the deciduous laterals were still *in situ;* and there was no apparent diminution of the original space.

Tomes thinks, even admitting that contraction of the jaw does take place, the pressure of the advancing permanent tooth would soon expand it again.

In the case of the second deciduous molars we have to guard against danger different from that of any possible contraction in the jaw; and the reasons against a premature extraction of these teeth are much less hypothetical. The first molar of the permanent set erupts at about the sixth year, whereas the successor to the second molar of the deciduous set does not make its appearance until the tenth to twelfth year. Now it is easily to be understood, that if the deciduous molar is extracted before its successor is pretty well advanced, or before the first permanent molar is fully erupted, that this latter would gradually move forward, there being nothing to resist, and thus diminish the space intended for the anterior teeth."

No matter what the facts may be in regard to contraction of the bone, or whether this be prejudicial to the regular arrangement of the permanent teeth or not; there is a far weightier reason against premature extraction of childrens' teeth. Temporary teeth, were not given to children merely to *reserve seats* for the permanent ones. The deciduous teeth, as well as the permanent ones, are intended as primary organs of digestion, and as such they perform a function which we must not loose sight of, in considering what course may be best to be pursued in any given case entrusted to our care. Premature loss of the molars must affect mastication, which, not being properly performed, leaves so much more to be done by the stomach, this latter organ becoming overtaxed, the general health must suffer, and with this the permanent teeth. Caries in teeth, when resulting in pain and inflammation, may produce severe nervous irritation which, when being reflected upon the stomach, may seriously interfere with digestion; and hence assimilation will be imperfect, and nutrition of the growing tissues become impaired. If caries is allowed to advance until suppuration of the pulp or alveolar abscess ensue, an injurious direct influence is exerted upon the growing germs of the permanent teeth in its locality. Inflammation extending to their tender vessels and membranes, stops nutrition and causes a malformed, pitted, or grooved, or badly calcified permanent tooth. Aside from this local effect, general constitutional irritation is produced by reflex action with consequences as mentioned before.

Certainly these reasons alone are sufficient to preserve intact the temporary teeth until such a time as we may have to expect their successors.

Still, we must not extract these simply because their shedding time has arrived, unless there are sure indications that their successors are approaching, as we might occasionally, as in case of hereditary transmission of a numerical difficiency, extract teeth which will never have successors.

Loosening of the teeth is not the only indication we have of the advance of their successors. Indeed, sometimes this does not occur at all, absorption being by some cause prevented. When the permanent teeth advance in such cases, there is generally more or less uneasiness felt, and often it can be detected by an abnormal protuberance upon the bone, internally or externally, from the arch of the teeth.

I have in my own family a case in which the lower four incisors, and the upper centrals of the permanent set, are all that have as yet erupted, and the child is ten years old. There is no loosening of either the deciduous lateral incisors or of any of the deciduous first molars, yet, according to the tables, the former ought to have been shed about three years ago, and the latter certainly should have begun to vacate ere now.

There are no prominences to be felt to indicate the development or advance of the permanent lateral incisors, and there is no loosening of the deciduous ones even now.

I certainly should feel exceedingly bad, had I extracted these teeth three years ago, and made the child go without teeth all this time; and who knows but what possibly there may never be any teeth of replacement, or they may not come until an advanced age.

After a close examination of all the points, we must then come to the conclusion, that deciduous teeth should be extracted when, from their diseased condition, extraction may prove the least of two evils, or whenever their room would be more desirable than their presence. Of these contingencies the operator should be capable to judge intelligently, before he attempts, with a ruthless hand, to remove these priceless gems.—*Missouri Dental Journal.*

MONTHLY SUMMARY.

Dentistry in the United States.—The dental profession in the United States, it is understood comprises 13,000 members, who earn an aggregate income of $24,000,000. The annual expenditure for materials amounts to $2,000,000, and for office rents to $3,000,000, leaving $19,000,000 as the net income of the profession. There are 9 dental colleges in the United States, from which 1,807 persons have graduated. The profession supports several dental periodicals, with an aggregate circulation of 12,900 copies. There are no dental colleges in the countries of Europe. Dentistry previous to the present century did not occupy the position of a profession, but its practitioners, it is said, were to a great extent quacks. In consequence of the greater skill of dentists of the present day, the tendency of the practice, it is stated, is to save the natural teeth and to avoid the necessity of inserting artificial teeth.—*Exchange.*

A Useful Varnish.—Three parts of blood deprived of its fibrine, four of lime, and a little alum, form a composition which, when applied to cardboard, renders it as hard as wood, and thoroughly impervious to water. It is a Chinese preparation, many of the houses in Pekin being coated with it.—*Med. and Surgical Reporter.*

Ancient Dentistry.—Dr. Reid, of Terre Haute, read a paper upon ancient dentistry. Among the ancients great success was obtained in this art. Casselius was a dentist in the reign of the Roman triumvirs, and gold was used for the filling. But nearly 500 B. C., gold was thus used, and gold wire was employed to hold artificial teeth in position, and it does not seem then to have been a new art. A fragment of the tenth of the Roman tables, 450 B. C., has reference to the burial of any gold with the dead except that bound around the teeth. Heroditus declares that the Egyptians had a knowledge of the diseases of teeth and their treatment 2,000 B. C. In Martial, Casselius is mentioned as either filling or extracting teeth; but he specified that he would not polish false teeth with tooth powder. Lucian mentions an old maid that had but four teeth, and they were fastened in with gold. These facts cover a period of 600 years. —*Med. and Surg. Rep.*

The Protective Power of Vaccination.—During these times of skepticism as to the protective virtue of vaccination, it may be of some interest to learn a little fact which has lately come to our knowledge, on the accuracy of which perfect reliance can be placed. A military surgeon having recently had occasion to examine a large number of English recruits, found that 60 per cent. of lads unprotected by vaccination had been the subjects of small-pox, as against 1.90 per cent. of protected recruits who bore no traces of small-pox. Remembering that these are men who have escaped any permanent damage from the disease, what must be the percentage of attacks in unprotected cases generally? —*Lancet.*

Anæsthetics—Their Relative Safety.—From a careful examination of the statistics of 209,893 cases, Prof. E. Andrews gives, in the *Chicago Medical Examiner*, the following estimate of the relative danger from different anæsthetics:

Sul. Ether..................	1	death	to	23,204	administrations.
Chloroform.....................	1	"	"	2,723	"
Mixed Chlo. and Ether..	1	"	"	5,588	"
Bichloride of Methylene	1	"	"	7,000	"
Nitrous Oxide.................	No	deaths	in	75,000	"

—*Dental Cosmos.*

BIBLIOGRAPHICAL.

Practical Therapeutics.—By Edward John Warring, M. D., F. L. S., Member of the Royal College of Physicians, Fellow of Royal College of Surgeons, etc. Second American, from the Third London Edition. Lindsay & Blakiston, Publishers, Philadelphia. A new edition of this valuable work will prove of great service to the student and young practitioner, especially as it contains such new matter as notices of Chloral, Bromide of Mercury, Iodide of Methyl, Bichloride of Methylene, Protoxide of Nitrogen, etc., etc., and extended notices of other preparations whose claims as therapeutic agents have only lately been fully recognized, such as the Bromide of Potassium, Alkaline Hypophosphites Hyposulphites, etc., etc., etc. The medical properties, therapeutic uses and doses of the various medicinal agents in common use are clearly and accurately stated rendering the work one of practical utility and an excellent text book. Over thirty pages are devoted to a valuable index of diseases, asterisks denoting the paragraphs most deserving of attention.

The Teeth and How to Save Them.—By L. P. Meredith, M.D., D.D.S.,. J. B. Lippincott & Co. Publishers, Philadelphia. This work, the author announces in his preface, is for the purpose of opening the doors of dental knowledge to the people, and of giving such suggestions and information relative to its uses and abuses as may awaken a better appreciation. The work is well written and contains much useful knowledge for the public, and some of which would be of benefit to certain members of our profession also, especially those who have allowed their calling to leave them far in the distance.

The volume is illustrated by a number of wood cuts, and is gotten up in a neat, attractive style creditable to the publishers. The author has certainly succeeded in his efforts, and has happily condensed much valuable information in a small space.

Treatment and Prevention of Decay of the Teeth.—A Practical and Popular Treatise. By Robert Arthur, M.D., D.D.S., with thirty-eight illustrations. J. P. Lippincott & Co., Publishers, Philadelphia. The author of this work, in his preface remarks that he offers it as the result of a long and very careful study of the subject of which it treats.

As the opinions held by Dr. Arthur on the subject of "prevention of decay of the teeth," have often been misrepresented, the publication of this work will be gratifying to the profession of which he is so honored a member; and while all who read it may not agree with some of the suggestions advanced, yet the able manner in which they are discussed, will have the effect of causing the most skeptical to consider them more carefully than heretofore, now that their true nature is understood.

By the system of treatment described in this work, the author claims 1st, That the teeth may be more certainly preserved. 2nd, That the treatment required is much more simple than that at present relied upon; and 3d, That the pain usually attendant upon dental operations may be entirely avoided.

Chapter 1. Is devoted to a brief discussion of the Anatomy of the Teeth-Enamel, Dentine, "Nerve," etc. Chapter II. treats of the causes and nature of decay—that the enamel is not always a protection even when perfectly formed, especially on surfaces in contact, offering as an example, cases where the crowns are completely worn down to a level with the gums by the friction of mastication, and the dentine remaining free of decay—that the enamel, from its hard, flinty character, is evidently intended to bear the friction to which it is subjected, but that it has no capacity of resisting attacks of decay under favoring circumstances. Chapter, III. is devoted to the "Treatment of Decay," and refers to the very great advances which have been made in the methods of using gold—the good effects of separating teeth in close contact to prevent decay, from the fact that teeth standing apart, are as a general rule exempt from its attacks, and thus obviate the necessity for filling them afterwards.

Chapter IV. is devoted to the importance of preserving the first permanent molars, and recommends that "as soon as the first permanent molars are formed, the temporary molars in contact with them should be cut away so that the permanent molars may be isolated." Chapter V. is devoted to the "treatment of the incisor teeth," where decay rarely occurs except upon the approximal surfaces, when these surfaces are in contact, and contends that as the necessary attention is rarely given on the part of the patient, superficial decay can be more effectually arrested by a permanent separatien, that by the operation of filling.

Chapters VI. and VII. treat of the "bicuspid and molar teeth which are equally as liable to decay as incisors," and describes in detail the means of prevention of decay, advocating the method of separating bicuspids and molars, even when perfectly sound, as a preventive to caries, and contending that the relative liability of the different classes of teeth to decay is about the same. Many will differ from the author as to this method of treatment being the proper one, and take exceptions to the earnest effort he makes to prove the correctness of the opinion he holds upon this subject.

The following table is given, after a very careful estimate of numerous cases examined, as a close approximation to the relative liability of the teeth to decay upon the proximate surfaces when all the usual efforts are made to treat it as it occurs:

Table of 1000 cases of Decay of Proximate Surfaces:

		per cent.
Central incisors,	121	12.1
Lateral "	90	9.0
Canines	80	8.0
1st Bicuspids,	172	1.72
2nd "	156	1.56
1st Molars,	245	2.45
2nd "	113	1.13
Wisdom Teeth,	23	2.3

Chapter VIII. is devoted to the "prevention of decay of the teeth," the author contending that as a general thing, the bicuspid and molor teeth will decay if the proximate surfaces of the incisors be attacked by caries at an early age. He calls the system he proposes, that of a permanent separation, a preventive one, and says: "what I propose is *the separation of teeth closely in contact, which are of such frail character, and are exposed to such destructive influences, that their decay is inevitable, or has already occurred.*" Chapter IX. is devoted to "some of the more serious consequences of decay of the teeth," such as exposure of the nerve, alveolar abscess, and neuralgia. Chapter X. is devoted to the "practice of dentistry," in a thorough and faithful manner, and dwells upon the serious injuries resulting from imperfect treatment. This work will prove an important addition to the dental literature of our day, and is worthy of a careful perusal by every member of the profession.

EDITORIAL DEPARTMENT.

Dental Items—Soft vs. Adhesive Gold Foils.—Prof. C. W. Wright, of the Ohio Dental College, in an address published in the "Dental Register," advances opinions on the filling of teeth, which, as he remarks, may risk his reputation as an operative dentist. All will give him credit for candor, however much they differ with him in his method. He closes his address as follows:

"Because adhesive gold is good and valuable in certain cases, is no reason why we should make a large proportion of our operations *capital*, when they would be *minor* if we employed soft foils.

At the meeting of the American Dental Association, at Nashville, Dr. Forbes excused himself for not being able to make himself heard, on the ground of having lost his teeth by "first-class dentistry." Thousands of mouths are in like condition. The man who takes three hours to fill a tooth, should receive, by a law in political economy, as much for that one filling, as he should get for three, who fills three teeth in three hours. The slow method, therefore, tends to increase the price of an operation, the price of a tooth. Is there any advantage, or any object to be gained in raising the charges for saving a tooth threefold? Not if we are philanthropists as well as physicians and surgeons of the mouth. Unless our philanthrophy embraces only the dentist.

The greatest good to the greatest number is a good rule in operative dentistry. A great many men who have come into the profession within ten years, in our State, have never seen a soft foil filling, and do not know the advantages. To them I would say, try it in your laboratory, try it in simple crown cavities, learn the principle and test it for yourselves. Prepare your cavity without retaining pits—make cylinders, block or pellets a little longer than the cavity is deep. Set them in the cavity and apply lateral pressure against the walls of your cavity; wedge them in with a key block or cylinder—consolidate the surface with the burnisher, and finish. Or stuff your cavity full of gold, solidly against the walls in any way most convenient to yourself and patient, and the way you can do it quickest and best. Do this well. You can conserve teeth, avoid unnecessary pain, and fill twenty teeth per day—if the cavities are in favorable position—when you become expert. Reserve your adhesive foil for special purposes."

A Vulcanite Plate Retained in the Stomach—Dr. Parker in the "Canada Medical Journal," relates the case of a lady, aged 25 years, of delicate constitution, who swallowed a set of three teeth on vulcanite, in March 1870, which is yet retained in the stomach. After the accident she experienced great suffering for a time, but was relieved by opiates and farinaceous food. Dr. Parker closes his account of the case as follows:

"The question arises—What will become of this foreign body if it is not passed 'per vias naturales?' And a second enquiry very naturally follows the first—What will become of the patient if it remains in the alimentary canal? If I am correctly informed, the material of which it is composed is not likely to be dissolved by the action of gastric juice, or by any of the secretions it may come in contact with, should it pass the pylorus. Dr. Cogswell in the article published in the "Canada Dental Journal," says:

"I felt desirous to know what mineral acids would dissolve vulcanite rubber, hence I experimented with the various muriatic, sulphuric, and nitric acids, found the two former had no effect upon the piece placed in it, but by applying nitric acid and chloroform, after 24 hours the piece had become quite like a sponge in softness, could easily express the coloring material from it, and in drying it could be rubbed up like powder between the fingers." If these strong mineral acids have failed to dissolve, or chemically change the material of which vulcanite is composed, I think we may safely conclude that the secretions of the digestive organs will hardly be able to accomplish it, and that the plate in question will, if not passed "per rectum," long continue in the canal without material alteration.

In reply to the second question—What will become of the woman should the foreign body continue in the canal? No certain statement can be given; but bearing in mind the history of recorded cases, somewhat analogous in their general features to that now under consideration, it may be remarked that it is possible, and even probable, that this vulcanite plate and teeth may be retained for years without destroying life, or even producing very alarming symptoms. On the other hand, grave symptoms may unexpectedly present themselves; the patient's life may be placed in jeopardy; or death may suddenly occur from inflammation, from ulceration, and perforation, or from its becoming impacted and obstructing the canal.

Dreading these not improbable contingencies, I objected to her being sent across the Atlantic to her friends in England, shortly after the accident occurred, on the ground that sea-sickness, if troublesome and violent, would be likely to produce irritation and perhaps fatal consequences.

The practical lessons to be learned from this case, are:

1st. That badly fitting plates holding artificial teeth are unsafe, and should not be worn—especially at night.

2nd. That much larger bodies than we would suppose, may find their way—accidentally or otherwise—into the stomach.

3rd. That when received there, even large and irregularly shaped bodies, may—and often do—remain for a length of time without producing alarming symptoms.

September 14th, 1871. I heard from this woman about the first of the present month, at which time she was a resident in the State of Rhode Island. She still wears the plate in the alimentary canal, and says that her health is quite as good as it was prior to the accident."

Salivary Calculi—Dr. J. Wyatt Pratt relates the following interesting case in the "London Lancet."

"L. P——, a retired medical gentleman, aged fifty four; has been lately in good health, but formerly exhibited indications of strumous diathesis. Twenty years ago he suffered from symptoms of phthisis, and coughed up, during much bronchial irritation, several chalky concretions. Has passed, at varying intervals of a few years, without much discomfort, small single calculi from the left submaxillary duct. After three or four years' relief, on the 6th and 7th of July last he commenced to void many small calculi from the same situation, accompanined with painful mastication and uneasiness on the floor of the mouth.

July 8th—Has had a bad night. At 10 A. M. he was found with both parotid, both submaxlllary, and both sublingual glands much inflamed and enlarged: tonsils and uvula much increased in size, rendering deglutition very difficult, all food regurgitating into the posterior nares unless the nose was tightly held during attempts to swallow; tongue considerably enlarged, and covered with creamy fur; power of articulation almost lost; elevation at the termination of the left Whartonion duct prominent, and the duct itself distended by a small calculus, which was removed by Dr. Edwards,—my senior partner—through the natural orifice, with a probe and pair of fine forceps, after which a quantity of saliva escaped and a little bead of pus. Opposite to the left lower first molar was a transparent vesication on the mucous membrane, over the sublingual gland, upon puncturing which a quantity of clear saliva looking fluid escaped. Skin hot; pulse full and bounding, nearly 120; bowels confined; both cheeks puffy and much distended; breath very offensive, and saliva dribbling freely from the mouth. Ordered, two grains of calomel immediately; to inhale steam; brandy and milk diet; and twenty-five minims of chlorodyne at night.

9th—Had a better night, and brought away two or three more calculi. A square block of white, smooth, firm lymph, as large as the crown of a molar tooth, had been secreted from the surface where the vesication had existed, and was now detached as it produced discomfort. Duct freely discharging saliva. Pyrexia diminished.

10th.—Restless night. Duct blocked up again: a blunt probe was introduced, and this had the effect of removing a liitle plug of sanious lymph, which was followed by a quantity of offensive pus. No calculi since yesterday Block of lymph on the surface removed as before.

11th.—Continual discharge of healthy-looking pus from affected duct. Papilla at its entrance hard, and as large as a No. 1 shot. Block of lymph again requiring removal. Swelling reduced.

12th.—Swallows better. Left submaxilly gland still enlarged and tender; other glands diminished to natural size. Free discharge of pus. Ordered nitric acid and liberal diet.

Went on improving until the 22nd. when the largest calculus ulcerated its way through the duct, about half an inch from its mouth, and was easily removed with a pair of forceps.

From this time he progressed favorably. The fistulous opening caused by last calculus soon healed, and the discharge gradually ceased, though the floor of the mouth remained tender and irritable for three or four weeks.

The number of calculi passed during the fortnight was thirteen, varying in size from that of a good-sized pin's head to the largest, which is rather bigger than a full-sized grain of wheat, and was the only one that did not escape from the natural aperture of the gland duct. They are of a pale-fawn color, roundish, slightly rough, and somewhat porous, and of a very light specific gravity.

Dr. Thomas W. Evans.—Among the promotions in the Legion of Honor included in the degree published in the *Journal officiel* on Tuesday last, is that of our countryman, Dr. Thomas W. Evans to the rank of commander. "The doctor has been long a member of the order, having been named Chevalier in July, 1853, and Officer in January, 1866. If we do not mistake he is the first foreigner who has obtained the rank of Commander. By the terms of the degree he received his promotion for services rendered as "Director of the American Ambulance," bnt it migth also have been added as its founder. We are glad for two reasons that the Republican Government of France has conferred this distinction on Dr. Evans, first because it has been merited by hard service and large pecuniary sacrifices, and secondly because it is a complete answer to the calumny that he is an Imperialist in his political tendeucies. The Doctor has shown his gratitude to the country which has given him a hospitable reception, by abstaining from all interference in its political affairs. Besides his profession places him in a position so delicate and difficult that it would be impossible for him to gratify such inclinations if he had them.

His course in regard to the Empress, when in her misfortunes she threw herself on his protection, was that of a gallant gentleman and nothing more, and the Government of M. Thiers fully recognizes the fact by conferring upon him a distinction, which, though unsought for, has been earned by zealous and substantial service to France."

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ARTICLE I.

Ossified Pulps.

BY S. P. CUTLER, M. D., D. D.

Read before the Tennessee Dental Association.

A lady about 35 years old called to have all her upper teeth extracted, so that a dentist in the country where she lived could put her in a full upper set.

The wisdom tooth on the right side was very small and sound, the second molar decayed off, the first molar, two bicuspids, and cuspid quite good with some cavities of decay; the four incisors gone, and three teeth, the right lateral, and two centrals pivoted, the lateral pivot broken and tooth gone, the left lateral and cuspid were nearly off to the gums, the left first bicuspid dead, with a large filling and another cavity; all teeth back on that side decayed off, which I extracted, and advised pivoting the other two, which she consented to.

On drilling the pivot hole in the lateral fang, I found no nerve cavity at all, the ossification complete and hard above the point drilled, no soreness or tenderness of and kind, the cuspid was also ossified one half the depth of the pivot hole, no tenderness whatever.

She had worn those three pivot teeth for over ten years without any trouble whatever, and done most her chewing in front of late years. She was well pleased with my advice and work.

In the above case we learn a valuable practical lesson, that is, that in all such cases where there is ossification without any trouble accompanying the process, we may proceed with our operations whatever they may be with almost perfect confidence of success. Where there is too much waste in the process, creosote and and other palliative treatment will in many instances procure relief from pain or soreness, as preliminary measures to operating.

I have recently adopted the plan, where there is any exposure of nerve and no inflammation, to cap the nerve with a small slice of spunk, one side slightly moistened with creosote and applied directly over the point of exposure, and then filling either with os-artificiel or amalgam, as the case may require. Where I wish to fill with gold, I use os-articiel first, and let it remain for a few weeks or months, then cut away sufficient to form the cavity to my liking, then fill without disturbing the capping and the portion of bone filling immediately over.

I have in this way filled a large number of badly decayed teeth, whether exposure of nerve existed or not, and with more *decided success* than by any other plan I ever practiced.

The spunk serves as a complete non-conductor and at the same time a protection to the nerve and sensitive dentine in the neighborhood, by its peculiar soft and delicate texture and non-destructibility, it being almost pure carbon which makes it, in my opinion, pre-eminently superior to any other substance yet brought into use for like purposes.

Now one of two things always occurs sooner or later where there is nearly or quite an exposure of pulp and the tooth filled, that is, the pulp either ossifies or dies; sometimes even the former condition first takes place to a limited extent, and subsequent death from too much continual shocking by the conductivity of the filling. In cases where the spunk is used for capping, the capping stands between the trembling pulp on the one hand and the shocks of the plug on the other hand.

No possible harm can arise from its presence in the bottom of all large cavities, as it is a palladium of safety to the delicate pulp and exposed ends of fibrils occupying the dentinal tubuli. In consequence of this protectlon, ossification, which must take place sooner or later on the inner walls of the pulp cavity or in the pulp at this point, or both consecutively may be carried on in a more normal or unhurried manner than must otherwise necessarily be the case, and as a consequence, in a large number of cases, the nerve and tooth be saved alive, when under other circumstances it would die and give trouble.

As a general rule, in all cases of exposure, or nearly so, where ossification takes place, the process is commenced immediately under the point of exposure, from the fact that at this point, there has been destroyed and removed a large extent of nerve fibrils that formerly dwelt in the tubuli, where there was a normal balance between the vital fibrils and mineral dentine resulting in a physiological or healthy balance.

Now where so large an extent of both non-vital and vital tissue have been carried away by disease, a corresponding weakening or vital resistance has taken place, which from this very weakening at the decayed point, yields to the more dominant influence of mineralisation by slow, gradual accumulations of lime salts in the pulp, first by stacis in the capillaries, then infiltrations of the liquor sanguinis through the capillary walls into pulp tissue among the nerve fibrils

At first we notice a chalky appearance at that point, of greater or less extent, of a granular mass not yet hardened into secondary dentine but undergoing this process. This can be often seen by the naked eye on removal of such pulps.

Sometimes there is a general white chalky appearance throughout the entire pulp, as if it was injected and distended with some white substance, which on exposure to the air does not shrink away like ordinary pulps into a rinkled and corrugated piece of raw hide, but remains full and plump like a dressed partridge ready for the cook pot.

Some one more incredulous than the balance of us poor mortals, asks "if this is really the case?" I will simply answer him by asking him to just make the experiment for himself and see for himself, as seeing is to know it as positive evidence.

I do not ask the profession to believe all I say in the matter, but let them investigate for themselves and give us their knowledge as data for us to go by; where there is multitude of counsel there is supposed to be safety.

Those chalky pulps make very interesting specimens for the microscope.

After this stuffed appearance of the pulp, there is very little evidence of any red blood circulating in the tissue, though there necessarily must be liquor sanguinis, circulating there until the process of hardening is complete, as this same pulp possesses more or less sensibility, which I know from personal knowledge in a great number of cases.

The nerve fibrils of the pulp, even after the process of hardening is complete, sometimes remains quite sensitive to the touch of an excavator, an example of which I witnessed recently in a very interesting case.

A certain quack doctor had a left anterior lower molar decayed on the posterior proximal side to the nerve cavity. When I saw this case the tooth had given trouble for several nights so as to prevent sleep, though not like common tooth-ache. I found the pulp entirely ossified so far as I drilled, which was down as low as the bottom of the nerve cavity, and solid dentine all the way, with some sensibility on cutting and drilling.

A great number of applications to relieve, were made which had only temporary effect, but subsequently the tooth did get better and was in his mouth the last time I saw him, but not entirely well. Up to that time this tooth had given him no trouble, still the process of ossification was nearly, completed throughout, and the probability is that he may be able to keep the tooth, as there is no soreness on masticating. In this case the pulp near the ends of fangs may be the point of trouble where the fibrils are too much pressed upon by the new process.

Another case: One of our dental students about 20 years old had an upper bicuspid filled with gold, which gave trouble, and he had the filling taken out which gave entire relief. When I saw the tooth, it had a large anterior approximal cavity occupying nearly the whole side of the tooth which would have penetrated the pulp cavity, only that the pulp was ossified and of a dark brown appearance, firm and solid. I believe this tooth had had an amalgam filling in it, and this may account for the discoloration. I advised him to use creosote in the cavity for a time, then cap and fill with os-artificiel and at some future time have it permanently filled.

Many other instructive cases have come under my own observation that I might relate, which are equally instructive in a practical point of view.

Now we want more practical knowledge in this important direction of our profession. What does our actual knowledge amount to, and what data is to day before the profession, that is of any defined and decided practical advantage to us? We are all groping our way in the dark, like the blind leading the blind, with little heed whether we go right or wrong so that we keep going. We all know how to pull out and put in teeth, but we want to know how to avoid this under all circumstances, so long as a tooth has a live pulp in it. After the death of this important tissue, we are then dealing with not exactly dead men's bones, but with dead bones themselves, in other words we have dead cocks in the pit to deal with, and it is an old truism "that a dead lion is not worth a live dog."

One reason why there are not more ossified pulps met with from decays reaching them, I believe to be owing to the fact that decay in teeth is the direct action of an acid, and as the decay approaches the pulp cavity, the dentine at the bottom of decay down to the chamber becomes more or less saturated with acid, and certain portions of the lime salts decomposed with discoloration down to the pulp, with still vital fibrils occupying this portion of affected dentine; I have often witnessed this condition of things.

The acid condition of this portion of dentine we might imagine to be sufficient cause to prevent secondary ossification in a large majority of cases. In fact I believe this tendency to secondary ossification is universal when the decay has approached the chamber, but owing to the presence of acid action in this vicinity the process is either altogether prevented, or at least retarded in a majority of cases. Nodulation, where the pulp has been reached, is a much more common occurrence than is generally supposed. Sometimes exceedingly small nodules may be found, several in the same pulp. Now what I propose, is to neutralize the acid always before attempting to fill, so as to favor this secondary process. This may be done by either carbonate of soda and ammonia, which should be sealed up in the cavity over night, or at least several hours, then dressing with creosote before filling. In this way we have assurance that the diseased dentine, is undoubtedly saturated to a greater or less extent with some organic acid, which has worked the destruction of the tooth so far as the decayed portion is concerned. In this way we may favor this saving process without any hazard whatever, with greater promise of success than from our usual method of filling such teeth without any treatment preceeding the operation.

Another case of nodular dentine. A sister of charity, 60 years or more of age, called and had a solitary left upper molar extracted. This tooth was very loose, still held fast by fleshy attachments. The tooth was sound and of good density, the fangs yellowish translucent, showing structural change in tubuli and slight cementosis.

On splitting it open, I found a black nodule hard and adherent to neck portion of cavity. This is an unusual case.

In this case the nodule was formed during the life of the pulp, as is always the case; and before the process occupied the entire pulp, death overtook the pulp which stopped all further action in this direction. The death of the pulp may have been the result of loosening or some other cause.

I have now in my possession over a hundred teeth with nodular and other forms of ossified pulps.

I meet with teeth almost daily with deep decays and no exposure of pulp, owing to the fact that ossification has taken place under the decayed region; sometimes this is the case in very young persons. In all such cases if there has been no trouble with the tooth recently, there is but little uncertainty in filling such teeth. Such teeth have acted on the defensive successfully against all outward attacks, and with a little assistance on our part, success is, I may say, certain, in at least a large majority of cases; I have seldom failed in such cases. It is an easy matter to determine whether or not there is any ossification of pulp by a tolerable strong magnifyer, the non-fleshy appearance of the pulp beingour best guide in these cases, together with the hardened condition at bottom of cavity.

ARTICLE II.

Address, Delivered before the Virginia State Dental Association.

BY JAMES F. THOMPSON, M.D., D.D.S.

Gentlemen:—In accordance with our preconcerted plans to inaugurate in a more formal manner the Virginia State Dental Association, we meet to-day in this proud old capital of the mother of States, to lay upon the altar of our Association renewed pledges of professional fealty and respect. It is with much pleasure that I greet you upon this occasion, and beg to congratulate you upon the success that is about to crown the efforts of a determined few, who assembled here one year ago, to advance higher the standard of our profession, which should be the pride of every dentist's heart.

The auspices under which we are permitted to assemble are indeed most cheering. When we look abroad upon this old commonwealth, which but a few years ago lay torn, bleeding and impoverished: to-day stands forth in bright array, full of hope and vigor. She garners in an abundant harvest and she sends forth her hardy yoemen and skillful artisans from every section of her borders to this, her metropolis, to lay upon her common altar the products of their genius and toil, and vieing in honorable competition for a prize, the reward of their labor and skill. We too are here from the office and laboratory, to lay upon the altar of our profession, the products of our experience and skill, and to tune the chord upon which vibrates professional fellowship and love.

Gentlemen, it fills my heart with pride, when I look back and see what rapid strides the dental profession has made within the last four decades of years; proud to see it in the front ranks of the sciences; proud to see it standing close by the side of its twin sister, medicine; but to realize it seems like a dream.

It is needless for me to go into the history of the dental science, for I take it that every educated dentist knows it well. It is needless for me to carry you into the catacombs of Egypt, and there show you specimens pertaining to our art, specimens of a once enlightened age, illuminated by the pen of Heroditus, the father of historians, whose light down through the mediæval ages becoming obscure, it again burst with a blaze of effulgent glory upon the eighteenth century, when the versatile Frenchmen, catching up the inspiration, added new lustre and gave an impetus to dental science, which, wafted across the Atlantic, sounded the key note upon the shores of America; and to-day the American dentist stands second to none. Boasting as we are ever proud to do of the oldest Dental College in the known world, that noble old pioneer, the "alma mater" of many of us here present, the Baltimore College of Dental Surgery, together with others that have sprung and are almost yearly springing into existence throughout the length and breadth of this land, can it therefore, be any wonder why we should not take the lead in our profession? I, gentlemen, am an advocate for the collegiate system as necessary to the thorough professional education of dentists. These institutions are to the dental student what the medical colleges are to the medical student. Let no one here for a moment think that I would reflect disparagingly upon any one of my professional brethren who have never had the advantage of a dental college education. I know of many such, who to-day by their high attainments and skill, would adorn and enoble any profession. To such I am ever ready to extend the hand of fellowship, but why should this continue in a land of dental schools? Many of our sister States have legal enactments, requiring all dental practitioners to be thoroughly educated and proficient, before entering upon the practice of their profession; and shall this noble old State, the mother of State's statesmen, be a laggard in making such an important movement.

Look what the consequence is; her doors are thrown wide open to an influx of many ignorant and unskillful operators, doing such miserable work, imposing upon the credulity of a confiding people, bringing reproach and dragging down a profession whose standard we are here trying to advance. I will ask what do the people as a mass know what the qualifications of a dentist should be?

Take them when their lives are endangered by disease, and see what efforts are made to secure the best medical skill. Take them when their bodies are torn and mangled, and the knife is to be applied, and see with what eagerness they try to secure the best surgical skill.

But, sirs, when teeth are attacked by that insidious enemy caries, and the ravages of decay are doing the sure work of destruction, do they stop and ask for the best dental skill to stay the hand that is working such destruction, maring the human face divine, and bringing disease upon the body? No; they are satisfied to employ the merest ignoramust who calls himself a dentist.

Let us gentlemen, in our associated capacity, give this subject our serious consideration. Let it be our chief aim to advance higher the standard of our profession, to pull down that of the mountebank and quack, and seek to place them under the bands of law.

I for one am opposed to the passage of a law that would in any way be oppressive upon any portion of the community, but the object of one is so manifestly just, that it must commend itself to every thinking mind that would take the trouble to look into it. I feel safe in saying there is no dentist in this State, who is fit to discharge his professional obligations to his patients, but will rejoice in its passage; and I feel safe in making the assertion that the mere fact of any dentist opposing a movement of this kind would be a sufficient cause for doubting his ability.

Gentlemen, I believe with the amount of intelligence we have around us, that the people can be made to become interested in this matter. Let us educate their minds upon the subject and the difficulty is at once removed. Let them go with us to our halls of Legislature, and ask for a law to protect themselves against the ignorant mountebank and quack. It is not sufficient that we as a body of professional men should make such an effort, for fear the question might be raised as to who wants this law and for whose benefit, the dentists or the people. I hope this association will give this, as well as other matters that will be brought before it, a thoughtful consideration. Let us show to the community at large that we are progressive men and are unwilling to hide our light under a bushel.

In the formation of dental associations we at once promote friendly intercourse among dentists and inspire members with professional pride, laudable zeal, and an earnest desire to press forward, to improve and excel in our dental operations. There is no doubt but that the different dental associations throughout the land are doing a noble work.

They have done much to break down the barriers of selfishness, and to place the profession upon a liberal and learned basis, in contrast to those days when dentistry was for the most part a secret art.

But now by the untiring efforts and zeal of a few noble spirits that have passed away, we find art and science most happily blended, and in language most beautifully expressed by a brother of our profession, "That science and art, the twin sisters, who so beautifully and harmoniously blend their characters and attributes in our calling, and ever growing, ever moving, ever adding to the already full stature, and lofty proportions; ever travelling onward and upward toward perfection. The achievements of to-day are but the finger posts that point to the discoveries of to-morrow. The triumphs of to morrow will reveal some hidden truth or develop some richer treasure for its successor."

It is here, gentlemen, in our associated capacity, that we challenge free discussion, free thought and opinion upon whatever subject that pertains to our professional advancement, and that we may render ourselves respectable and respected, useful and be appreciated.

Thanking you gentlemen for your courtesy and kind attention, rest assured that it is my fervent desire that we may all live to be proud that we are members of the Virginia State Dental Association and to see it eminently successful and prosperous, and an ornament to this proud old State whose name it bears.

ARTICLE III.

Virginia State Dental Association.—Second Annual Meeting.

REPORTED BY JAMES B. HODGKIN, D. D. S.

The second annual meeting of the Virginia State Dental Association was held in Richmond on the 2nd and 3rd of November 1871, at the office of Dr. Judson B. Wood. While the attendance was not as large as was hoped for, yet the spirit of desire for dental improvement was so fully manifested, and the enthusiasm expressed so great, that those present were more than ever convinced of the importance as well as the utility of organization, and of the fact also that the Society, though only in its second year, was a decided success.

The meeting was called to order by the President, Dr. James F. Thompson, and after usual preliminary business, the address of the President was read. It is published elsewhere. The profession was represented by delegates from Richmond, Fredericksburg, Norfolk, Staunton, Alexandria and other places. Quite a number of new members were received, and a more perfect organization of the Society effected.

The chairman of the executive committee, Dr. H. M. Grant, reported that he had corresponded with some three hundred and twenty-five dentists in the State, with a view to securing their interest in the organization. Many had responded. Among these responses was the following interesting letter from Dr. W. W. H. Thackston:

FARMVILLE, VA., Oct. 31st, 1871.

My Dear Doctor:

I received your kind letter calling my attention to the "Annual meeting of Virginia Society of Dental Surgeons." I should have replied promptly but for sickness at the time, and the hope that I might make a personal acknowledgement at the meeting.

I am greatly grieved and disappointed that circumstances forbid my leaving home at this time; and I now write to let you know, and through you to inform the Association, that it is with the most sincere and unfeigned regret that I am forced to abandon the purpose of being present at the meeting for this year, and of aiding to the extent of my limited resources and ability in the furtherance and accomplishment of the objects and designs of the Society. Feeble as that aid would be, confessedly feeble as my resources are, I yet cherish the desire to do my personal and individual part in the work of upholding and promoting the advancement of dental science. I feel no relaxation or abatement of interest, as my repeated absence from the meetings of the Society might imply, but a daily growing and strengthening desire for the welfare and improvement of our specialty of the "healing art." More than that, I desire Southern growth and improvement; I desire that Virginia should take her place in the forefront of that column whose march is onward and upward, and whose goal is purity and perfection. I want Virginia talent developed and cultivated, Virginia invention fostered and encouraged, and Virginia resources and achievements brought out and acknowledged until "Virginia Dentist" shall be as proud a title in this country as "American Dentist" now is in the ports and capitals of Europe.

To accomplish so desirable a result there is but one sure, certain and comparatively speedy method, and that method has happily been adopted. Association, *association;* concert and harmonious, persistent, determined *action*. You have taken hold of the great principle that underlies all human triumph, that foreshadows all great achievements. And more than all you have to do, is patiently to work out the details; and in a few short years Virginia Dentistry will be full up and along side of Virginia law, medicine, theology, mathematics, or any other art or science, studied and practiced by human intellect and human hands.

Do me the kindness to present my cordial greeting to the "Virginia Dental Association;" tell them that though not with them in person, I am of them, soul and body, that I sympathize fully and earnestly in their objects and ends, that I will share with them all their labors and burdens, and will rejoice with them in whatever of good their efforts may accomplish.

In great haste,

Very truly, and sincerely yours,

W. W. H. THACKSTON.

Dr. H. M. Grant was elected President for the ensuing year, and Drs. James F. Thompson, Wm. B. Pleasants, and A. B. Arthur, Vice Presidents. Dr. George F. Keesee was elected Secretary, and Dr. J. Wood, Treasurer, and Drs. Thompson, Scribner, and Mills, the Executive Committee.

Dr. Thompson took occasion in retiring from the chair very gratefully to thank the members of the Association for the uniform courtesy and kindness he had received from them, and to bespeak for the new presiding officer, the same kindly feelings and treatment.

Dr. Grant took the chair, briefly thanked the Association for the honor conferred on him. He stated that not the least of the benefits arising out of this Association, was the bringing together in harmony and good fellowship, gentlemen from different sections of the State.

Profs. F. J. S. Gorgas, and P. H. Austen of the Baltimore Dental College, Prof. J. Taft, of the Ohio College, and Dr. F. Y. Clark, of Savannah Ga., were elected corresponding members, and Prof. H. R. Noel, of the Baltimore College was elected an honorary member. The code of ethics of the Southern Dental Association was read by Dr. Thompson, and on his motion, adopted as the code by which this Association be governed.

The following appointments of delegates and committees were made:

Dr. J. Hall Moore was appointed a delegate to represent the Association in the next meeting of the Southern Dental Association, and Drs. Wood, Johnston, H. C. Jones, Scribner, and Thompson, delegates to the American Dental Association, to meet at Niagara, N. Y. The President announced the following committees:

Physiology.—James Johnston, W. B. Pleasants.

Dental Pathology and Surgery.—William A. Mills, J. Hall Moore.

Histology and Microscopy.—J. B. Hodgkin, F. A. Jeter.

Chemistry.—A. B. Arthur, W. M. Dorsett.

Dental Therapeutics.—S. H. Henkel, R. N. Hudson.

Operative Dentistry.—J. B. Wood. G. A. Sprinkel.

Mechanical Dentistry.—E. R. Perow, J. W. Scribner.

Dental Literature.– J. F. Thompson, F. F. Henley.

To deliver the address of welcome to the Southern Dental Association, Dr. W. W. H. Thackston, and Committee of Arrangements for the same meeting, Drs. Wood, Steele, and Thompson.

Voluntary Essays.—George F. Keesee, T. M. Henley, George B. Steele.

Membership.—J. F. Thompson, J. Hall Moore, J. B. Hodgkin.

Arrangements were made for a meeting of the Association in July, the time when the Southern Dental Association will meet in Richmond, and preparations made for a Virginia welcome to that body.

Dr. Grant read an essay on "Professional Intercourse," which was received with marked attention and greeted with warm applause. It is published elsewhere.

Owing to the infancy of the Association and the newness of its legislative machinery, time was lost in discussion over constitutional and other points, which might perhaps have been devoted to better purposes. It is certain, however, that by the time another annual meeting arrives, with the work laid out for the various committees and essayists, and the discussion of questions arising out of these reports when made, the Association will have abundant material for thought and action. While we would not disparage the claims of the older dentists, and while many of them we revere as fathers and lights in the profession, yet we could not but be gratified at the enthusiasm and ardor of the few young men, who almost unaided have labored and striven successfully to form and place on a solid basis this Association. It is an honor to them and its success is their praise.

The next annual session of the Association will be held in Richmond, in November, 1872.

ARTICLE IV.

American Dental Association.

[CONCLUDED.]

The following Special Committee on Dental Education was appointed: Dr. S. B. Palmer, Syracuse, N. Y.; Prof. Homer Judd, St. Louis, Mo.; Dr. M. S. Dean, Chicago, Ill.

A further report by the newly-appointed committee was then read by Dr. Francis.

The report claimed to be only a few simple suggestions. It is essential that all who practice a profession so indispensable to the requirements of the age—when health, comfort, and even life depend upon the judgement and skill of its members—should be thoroughly fitted for their mission. With the abundant opportunities, it is time that the day of empiricism had passed. Educational institutions are conveniently located; text-books are accessible to all; periodicals come each month well freighted with thoughts and suggestions; organized dental societies in nearly every State and city afford opportunity for interchange of thought and comparison of investigation; and in view of all this it would seem that there is little excuse for plodding in darkness, unaided by science. No profession has made such strides as ours; yet, as compared with other professions, we are far in the background. This should not be the case; and the future will testify that it will not be the case. Among the the twelve thousand or fourteen thousand dentists of this country, are hundreds, yes thousands, who have had little or no preliminary instruction. Probably not one-quarter of this number read the journals, and are familiar with text books. We know that in families or communities where newspapers and books are ignored we find ignorance and superstition. On the same principle, are not those of our profession who discard books and their teachings in the slough of ignorance.

The number of members of societies cannot be ascertained, but it is vaguely estimated that only about one-tenth of those calling themselves dentists are members of any dental organization; and of this small number scarcely one in three take a genuine interest in their societies, such as preparing essays and participating in discussions.

We have nine dental colleges in the United States in a healthy condition. We regret that their sphere cannot be more widely extended. We would make it a legal requirement for all new-comers to receive the benefit of their teachings. While charlatans and empirics drag at our skirts, so long must we expect to share in the odium that falls upon their heads. We hope the time is not distant when every State will require every practitioner to give evidence of his ability and fitness, as to principles and skill. A law of this character need not be unjust. If a board of censors should be required to pass upon every applicant, what a change would soon be effected. Men in active practice, if allowed three or five years to fit themselves to pass the required examination, would not only in the end be themselves benefited but their patients would be doubly benefited. Even in a mercenary view of the matter, the more valuable will be the dentist's services to his patient, and the greater the remuneration received for the higher skill employed.

Respecting students, the Committee suggest that while the value of private instruction is recognized, the importance of more extended scientific knowledge of underlying principles that is thus obtained cannot be overlooked, and they recommend that the profession generally impress upon their students the importance of pursuing a college course. In addition they would suggest that the colleges as well as private instructors, decline to receive students whose moral character is tainted with vice, or who does not possess a fair academic education. Then, properly equipped and fitted for their duties, the student may move forward in the path of usefulness and honor, receiving the reward for his toil.

Prof. McQuillen said that his conceptions of what a denist should be are of an exalted character. He should be a gentleman. If not one by nature, then those characteristics should be cultivated. He should be an educated man as his calling brings him constantly in contact with persons of education and refinement. He thought a collegiate education should be made compulsory upon all who propose to enter the profession, and all men would be able to get it if they had the will. The advantages of a compulsory education were exemplified in Europe during the late war, in the grand movements of Bismarck and Von Moltke. It is all nonsense for a man to say he cannot get a collegiate education, who has hands, head and health.

Dr. Atkinson. Medicine owes nearly every item of its truth to efforts of ignorant minds empirically put forth. I have been engaged in teaching twenty-five years, but have scarcely satisfied an ambition of my soul. I would go further in this matter than any who have yet spoken. I would have a man a graduate of schools before he can matriculate in dental knowledge. Fault-finding passes for criticism. Education is a serious cataloguing of mental concepts. "Dirt is only matter out of place." Let us speak forth our inmost convictions with truth and soberness on all occasions.

Dr. Walker indorses all that has been expressed by Drs. Atkinson and Francis. Charlatanism is not confined to those who are not graduates. We must have legal enactments to control this matter.

Dr. Crouse likes the idea of legislation, but if we pass such stringent laws, what are we going to do for office-boys? The ignoramuses are crowded into the profession in this way. The meanest men we have are graduates. Get the right kind of timber before you build your house. Competition among colleges leads to too slight discrimination as to the qualifications of graduates. Colleges may be benefitted by criticism. Men of the right kind of timber will work their way without means. There are too many colleges and journals—spreading things too much, and inducing too much competition. Adjourned.

FOURTH DAY—*Afternoon Session.*

Called to order by the President. Minutes read.

The Chair announced as the Publication Committee, Drs. Cushing and Forbes.

The report from the special committee on the Barnum testimonial was called for, and Dr. Cushing presented the medal, which he said was the report, and would speak for itself, and so far as its artistic merits were concerned, would bear close inspection. The medal was accepted, and placed in the hands of Dr. Cushing for delivery to Dr. Barnum.

Dr. Goddard moved to reconsider the vote by which the amendment offered by him last year relative to time of meeting was rejected. After discussion, the motion to reconsider was carried.

The original motion was verbally amended, the amendment carried, and the resolution as amended then put to vote and lost.

A resolution of thanks was passed to Drs. Allport, Cushing and McKellops, for procuring and presenting to this association the beautiful medal to be presented to Dr. Barnum, as a testimonial for the free gift of the rubber dam.

The report of the Publication Committee was then read by Dr. Dean.

The report stated that the committee had, in accordance with their instructions, employed the publishers of the *Dental Register* (they making the most favorable offer) to issue three hundred copies of the Transactions, in paper covers, which with the less number printed, and the mode of publicotian, effected a saving to the association. But the committee, without reflecting upon the publishers, did not recommend the future adoption of this plan, as the small saving was not commensurate with the disadvantages. The supervision of the work requires an attention quite impossible when it is done at a different place from the residence of the committee. The practice formerly adopted of transmitting the reports of each speaker to him for revision, resulted in its return so altered as to be scarcely recognized. This renders the Transactions more complete and scholarly, but tends to encourage a reckless style of debate. The committee have hit upon a compromise between this plan and that of publishing as reported. The reporter will, during the session, read over his notes to each speaker, giving an opportunity to correct errors while the subject is fresh : thus accuracy may be secured. The able stenographic reporter who was employed last year was secured for the present session. The charts accompying the report on Dental Pathology were engraved at the expense of the chairman of that committee. The accounts of the committee show an amount paid for printing Transactions, of $204; reporting, $80; sundries, $17; and a balance due to the committee of $4.07.

The Publication Committee were, on motion of Dr. Judd instructed to exercise their constitutional right of revision, in reference to the essays and discussions, excluding such matter as they deem unworthy of publication.

A motion to appoint a delegate to the Southern Dental Association was adopted.

The committee appointed for the purpose, reported resolutions of condolence in relation to the death of Drs. Peebles and Willis.

Report of Committee on Dental Literature was read by Dr. Cushing.

The report considered it the duty of the committee to endeavor to advance the interests of the profession by fair and judicious criticism upon what had been written; and disclaimed any intention of personality in what might be said, all criticism being in the kindliest spirit, and should be acceptod in the same spirit.

The periodical literature of the profession claims the first attention. We are always in advance of text books, and must depend on the journals and transactions of societies for the most advanced knowledge; without them we should soon be behind the age. To say that our journals are all that they should be, would be far from the truth; but considering how poorly they are sustained, and at how much personal sacrifice they are conducted, we wonder that they are as valuable as they are. A marked improvement is perceptible, however, during the past two years. It is unfortunate that they cannot exclude from their pages much that appears in them; if we ask why they cannot, the only answer is—first, that those who can write well do not; and second, that the meagreness of the support by subscription hampers the conductors, so that they cannot be as independent as they ought. As a remedy, let every man who is competent, make it a part of his religion to furnish two or more papers annually, requesting the editor to revise or exclude, if needful; and, next, let every man who takes but one journal subscribe for all the rest—and if he takes none, subscribe for all at once. The editors cannot be held altogether blameless: they should more carefully revise what is sent them, suggest to authors such revisions as seem desirable, and thus improve not only the journals, but the future efforts of writers. The transactions of societies deserve mention. That of this body will compare favorably with those of former years. The Illinois State Dental Society has for three years published its Transactions, which we think will bear worthy mention. The committee commend this plan as one which, if pursued, would result in great benefit—not only by preserving valuable matter, but by improving both writers and speakers, and in stimulating emulation.

The report then referred to the needs of the profession in this matter, claiming that we have no literature on this subject worthy the name, or of the present state of knowledge. The lack of knowledge of pathology and etiology is palpably great, and largely due to the absence of text-books, and a want of appreciation of its importance. The idea that the teeth are parts of a vital organism, has no force in the minds of the profession. There has been no satisfactory solution of the daily problems presented in the mouths of patients; the accepted theories will fail to satisfy studious inquiry, and the conclusion is daily forced upon us that we have to deal with diseases governed by the same laws as those which preside over the whole body. The work needed should not only consider underlying principles, but their method of application. Very few in any profession have the ability to make proper application of general principles; those who can do so stand out in bold relief from the mass. The work should be comprehensive, clear, and concise, and apt in illustration. The work of Prof. Tyndall on Heat and Sound affords the best example of the required style; treating subjects hitherto imperfectly understood in such a manner that any ordinary mind can comprehend them.

The report then enlarged upon the fact that the etiology of dental caries, whether we accept the vital, the chemical, or the chemico-vital theory, is but imperfectly understood; no one nor all these will explain the causes. Predisposing causes are not a satisfactory explanation—there is something beyond. Teeth are daily witnessed that by this theory should be particularly subject to decay, but yet are retained in a comparatively sound condition, while those on the contrary quite the reverse, are sometimes hopelessly destroyed. These phenomena force upon us the conviction that dental caries is not simply a local disease, but a local expression of a constitutional disorder. Chemical action is the immediate cause, but this is only rendered possible by the constitutional derangement. If this be true, then constitutional disease must be the cause, and it should be amenable to constitutional treatment, and the time is coming when it will be demanded, as much as operative treatment is now. This leads us to affirm that the dental practitioner should be educated to the fullest extent in general medicine if he hopes to develop the highest beneficence, and this will at no distant day be demanded by the public.

The magnitude of the proposed work was then noticed; it must the result of immense labor, experiment and research, attended with peculiar difficulties. To such a work must be brought a mind well stored with knowledge of the principles and practice of medicine, and trained in observation and investigation, with almost infinite patience and diligence; and a power to cast aside all preconceived opinions. Your committee have apparently wandered, only to present some grounds for the position they assume in offering suggestions touching the literature of the future. The demand for such text-books, as are here referred to, they feel to be the great demand which now presses upon us, and which sooner or later must be satisfied. Your committee felt impelled by a sense of duty to say this much, and though their views are feebly and imperfectly presented, they hope their efforts may not prove entirely fruitless.

Dr. Francis thought every dentist who is competent to do so should write one or more articles a year for the dental journals. If articles were not accepted at first, the writers should not feel badly about it, but should try again.

Drs. Cook and Morrison were appointed a committee to conduct the newly elected officers to their seats.

Dr. Cushing, on taking the chair, thanked the association for the evidence of good feeling and confidence manifested in placing him in that position, and said that he would endeavor to preside with impartiality and satisfaction to the association.

Dr. Morgan, the retiring President, again thanked the association for the honor conferred upon him, and also for the courtesy extended to him during the past few days. He congratulated the body upon the harmony and good feeling that had prevailed, and upon the general character of the discussion. The papers read would do honor to any scientific body. The contrast between the present meeting and those a few years back deeply impresses him. He would also congratulate the body upon their newly elected officers. This association has exerted a powerful influence for good; local societies have sprung up; a more liberal spirit has been inaugurated. This society has a controlling influence on the literature of the profession in this and other countries The future is bright. The next twenty years will accomplish much more. He is glad to see the gray hairs present; it inspires him with high hopes for the future.

A resolution of thanks to the retiring and re-elected officers, for the successful discharge of their duties, was adopted.

Also, a resolution of thanks to the reporters present, and to the railroads for favors extended, was passed.

The Committee on Prize Essays had no report.

The minutes of the day's session were then read and approved.

A motion was carried instructing those holding any number of copies of Transactions to forward them at once to the Treasurer, as he frequently had calls which he was unable to supply.

A committee of ten was appointed to secure half fare rates to the next meeting, to consist of the officers of the Society.

Adjourned to meet first Tuesday in August, 1872, at Niagara Falls.—*Reported for "Cosmos," by C. Stoddard Smith, D.D.S.*

SELECTED ARTICLES.

ARTICLE V.

Toxical Effects of Hydrate of Chloral when Persistently Used as a Hypnotic, and Fatal Results of Large Doses.

BY N. R. SMITH, M. D., BALTIMORE.

In February last a medical friend, long retired from practice, called on me for advice in regard to a singular affection of the fingers of both hands, attended with desquamation of the cuticle and superficial ulceration, especially about the borders of the nails. It was attended with pain and much morbid sensibility to touch. It was also associated with some acceleration of pulse and general *malaise.* He visited me daily for some ten days, when by the use of astringent lotions and mild digestive ointment, the local affection was overcome. He informed me that he had been taking chloral in liberal doses, as a hypnotic, for four months. He expressed to me his conviction that the disease of his fingers had resulted from the use of that medicine.

Having never observed the agent to produce such a result, I was reluctant to believe that it was the case.

Some three weeks after the cure of the local affection, I was called to attend my friend in consultation with his family physician. We found him laboring under acute bronchitis in severe degree. His respiration was exceedingly embarrassed, and there was a high degree of hoarse mucous rale. The bronchial tubes were filling ; the pulse was about 140, and the action of the heart *extremely feeble.* By the treatment adopted, our object was to sustain the powers of life, which were rapidly failing, and to relieve the bronchial tubes of mucus. Our efforts, however, were unavailing. He died on the third day after I first saw him.

I scarcely, at the moment, entertained a suspicion that the use of chloral was concerned in producing the fatal malady of my friend, it being not at all uncommon for persons of his age (70) to succumb suddenly to such malady from ordinary causes.

Some three weeks later I accidentally met a medical friend, who expressed pleasure at the meeting, as he wished to consult me in relation to a singular affection under which his daughter, a young lady twenty-two years of age, was suffering. He described precisely the affections of the integuments of the fingers which had occurred in the case described above—erythematous inflammation, desquamation, and ulceration around the border of the nails.

Struck with the resemblance which her malady bore to that of my friend, Dr. C——, I inquired if she had been taking chloral. He replied that she had used it as a hypnotic a month, every night, and that he had suspected that article to be the cause of her disease.

The young lady was not suffering constitutionally at that time; but about ten days after I was called to see her. I found her extremely ill. There was universal anasarca. The action of the heart was exceedingly feeble, the pulse 140, and extremely weak. Her respiration was much embarrassed, and the recumbent posture was impossible. Procuring some of the urinary secretion, I tested it with my nitric acid, and discovered a notable quantity of albumen.

I was very apprehensive of a fatal result, but immediately prescribed stimulants and diuretics, digitalis being the constituent most relied upon.

On visiting the patient, after an interval of a day, I was much surprised and gratified to find her greatly improved. Her pulse had been reduced to 90, and was greatly improved in tone. The kidneys had acted freely, and the anasarca had much abated.

Having been myself confined by illness, I did not again see her. On meeting her father some three weeks later, I was gratified to learn that she had entirely recovered.

I have knowledge of two other cases in which the same affections of the fingers resulted from the use of chloral.

Within the last ten days two deaths have occurred in Baltimore, manifestly from the toxæmia caused by an overdose of chloral. The subject of one of these accidents had been under the care of an irregular physician, and by his advice had taken chloral in ordinary doses for the relief of a painful neuralgic affection of the neck.

After the medical attendant had discontinued his visits, the patient persisted in the use of the hydrate, taking it, as I was informed by his brother, in doses of not less than half a drachm. On the day of his death he was know to have purchased three drachms of the article. How much he took during the day is unknown. In the evening he retired to his chamber, and in about twenty minutes after he was found dead beside his bed. He was undressed, and the bedclothes were turned down, but the bed was undisturbed, and it was manifest that death had arrested him at the moment that he was prepared to step into bed. The coal-oil lamp which he used was extinguished, but the glass chimney was still hot. The glass from which he had taken the chloral stood on a small table near the head of the bed, and in it were a few drops of the medicine, recognized by his brother by taste and smell. There can be no doubt, therefore, that he fell almost instantly dead from the effect of the poison.

Another instance of almost equally sudden death has recently occurred in this community. The fact is generally known, but I am not authorized to name the individual. he had been laboring under a painful affection of the head, and was attended by a homœopathic physician. On the evening of the night of his death he had a hypodermic injection of morphine practiced upon him, probably in ordinary quantity. This not relieving his pain, chloral was administered. He went to bed, soon became quiet, and for some hours was left undisturbed. His perfect stillness at length attracting attention, he was found to be dead, and probably had died soon after the administration of the chloral. I have no reason to believe that the medicine was given in larger doses than has been recommended as safe by high authority, nor do I know whether he had taken it for any length of time.

Another case of which I have knowledge was that of a lady, who had undergone a severe surgical operation. As she suffered pain, and was restless, it was determined, in consultation to give chloral by injection, so as to avoid irritating the stomach. A drachm and a half was thrown into the rectum. She at once sank into a state of insensibility, and died in some three hours. An eminent physician of Washington, who was in immediate attendance on the case, Dr. N. S. Lincoln, gave it as his opinion that she died from the effects of chloral.

These cases are, it appears to me, amply sufficient to establish the toxical effects of this powerful agent. It is probable that its poisonous effects are exerted in two ways:

1st. When given in a large dose, and especially when the system may have been charged with it by its previous administration, it at once overwhelms the powers of life, and causes immediate death.

Upon what organ or organs does it exert its deadly effects? It must be either upon the heart or the brain, perhaps on both. It is believed that chloral, entering into the blood, develops chloroform in that fluid, the amount developed being determined not merely by the quantity taken, but by the condition of that fluid. Chloroform, we know, when respired, exerts its influence upon both brain and heart. In the numerous cases in which it has caused death, this result has been produced by its interrupting the circulation.

2d. It appears, when given in small doses and continuously for some time, to induce a form of toxæmia similar to that caused by the continued administration of ergot. Its effects on the fingers of both hands, in the two cases related above, would justify such a belief. It is well known that animals fed on spurred rye suffer gangrene of the extremities.

In one case in which I tested the urine, albumen in notable quantity was detected. This case alone, however, establishes nothing.

Another very interesting and important inquiry is certainly suggested by the foregoing observations, crude as they are.

If chloroform, developed in the blood from chloral is productive of such disastrous effects, primary and secondary, can the direct inspiration of chloroform be as inocuous as it is thought to be?

The profession are sufficiently aware of the fatal primary effects of chloroform in numerous instances. It has undoubtedly caused death in many cases in which it has been given with every caution in regard to quantity and mode of administration—in cases, too, where there existed no malady of brain or heart to forbid its use. In some instances it has been administered fatally, in which it has been previously treated with good result.

But I would more especially call the attention of the profession to the chronic poisoning of the blood, which I believe results from its free and repeated use.

The writer of this artecle has administered chloroform perhaps as often as any other surgeon in America, both in hospital and private practice, commencing its use from the time of its discovery, and its first application as an anæsthetic. Indeed, I have been constrained to use it in many cases in which my judgment was adverse to its use, for such is the overweening confidence in its effects, that many patients refuse operations except under its influence. But the more I have used chloroform the less has my confidence become in its inocuousness. When I compare the results of my operations performed before anæsthetics were employed with those performed during the last twenty years by the aid of chloroform, I am satisfied that unpleasant secondary results were less frequent during the past period than they have been the use of that agent. I allude to secondary hemorrhage, pyæmia, erysipelas, and hospital gangrene.

Whoever will take the trouble to look over the medical journals and retrospects of the last two years, will discover that pyæmia or scepticæmia occupies far more space in surgical records than it did before anæsthetics were so generally employed.

When chloroform is administered during the period of an hour or more, as it frequently is, it undoubtedly enters copiously into the circulation, not only powerfully impressing the brain and heart, but modifying the constitution of the blood and functions of the capillaries. If the effect of chloroform, developed from chloral in the blood, be such as I have shown on the functions of the minute vessels, causing erythema and ulceration in the extreme parts, may we not suppose that the introduction of chloroform more directly into the circulation may promote the occurrence of those results not uncommon before its use?

These suggestions, I trust, will not be regarded as impertinent from one who has practiced surgery for more than half a century, without and with the anæsthetic agents.

I doubt not that, if these remarks are deemed worthy of any notice at all, they will be rejected by the majority of the profession, but I have abiding confidence that their truth will be ultimately acknowledged.—*Boston Medical and Surgical Journal.*

ARTICLE VI.

A Case of Facial Neuralgia Treated by Extirpation of the Superior Maxillay Nerve.

BY B. A. WATSON, M. D.

T. De Y., æt. fifty-two years, married, of temperate habits, a rectifier by occupation for the last twenty years; had previously worked at shoemaking. During the early part of his life, while engaged in shoemaking, he suffered severely from indigestion and hepatic derangement, which were usually benefited by laxative doses of the massa de hydrargyro. He has continued to suffer more or less from indigestion, but not nearly so much since he changed his occupation. The neuralgic disease first made its appearance in the spring of 1868. At this time he observed, when he washed his face in cold water, that he had flashes of pain about the region of the right cheek and orbit. The pains now were of short duration, lasting only a few seconds. These pains gradually increased, and he soon began to suffer severely: was unable to eat, drink, converse, or laugh without having a most violent paroxysm, causing him to shriek with anguish. These paroxyms were more severe during the day than the night. After suffering thus acutely for about six months, he found himself partially relieved. (The extraction of teeth, and medicines used, had failed to give any relief.) This temporary relief continued until about four weeks previous to the performance of the operation, when it returned suddenly. The exacerbations assumed a more violent form, marked by excruciating and nearly continuous agony during the day. His sufferings were now much more severe than on any previous occasion. The pain was not now confined to the cheek and orbit, but the lip and nose were involved. The slightest touch upon the surface of the face, a current of air, or a mouthful of water acting on the palate, would throw the patient into a violent paroxysm of agony. The condition of the patient was such that he could not attend to any business; his general health was greatly impaired; he frequently spoke of his life as a burden; feared the loss of his reason. He had tried medicines until he had lost all confidence in their power to relieve his sufferings, and begged for an immediate operation.

I determined to perform Dr. Carnochan's operation, as modified by Prof. Jas. R. Wood. Dr. Carnochan's cases are reported in *American Journal of Medical Science*, vol. xxxv.; Prof. Wood's in *New York Medical Journal*, June, 1871.

I operated June 11th, 1871, with the assistance of Drs. Varick, Mulcahy, Wolfe, McGill, Gardner, Craig, and Gray. The patient was placed in a large arm-chair before an open window, with his head resting upon the shoulder of an assistant, when the ether was administered, and "a semi-lunar incision was made in the right cheek, commencing at the inner, and terminating at the outer angle of the eye. A verticle incision was then made from the centre of the first, extending down to the vermillion border of the lip, but not sufficiently deep to enter the buccal cavity. The flesh was then dissected up, and held in that position by an assistant. The branches of the superior maxillary nerve were dissected out from the soft parts, and an opening made through the anterior wall of the antrum, by means of a trephine, three-fourths of an inch in diameter." I now, at the suggestion of my friend, Dr. Varick, introduced into the infra-orbital foramen a small probe, which I passed backward through the canal; and then, placing the concave surface of a gouge over the probe, and carrying the gouge backward through the infra-orbital plate, the nerve was easily dislodged from its bed in the groove as far back as the posterior wall of the antrum. A smaller trephine was now used for perforating the posterior wall, thus opening into the spheno-maxillary fossa, "exposing the nerve at its exit from the foramen rotundum, and also Meckel's ganglion."

The nerve was then gently drawn forward and divided behind the ganglion, and a portion of nerve two and a half inches in length was removed. The hemorrhage during the operation was very slight. As soon as the oozing had stopped the semi-lunar and the upper portion of the vertical incision being left open for the purpose of drainage.

Two hours after the operation the pulse was eighty-four per minute; skin natural; some nausea, attributable to the anæsthetic; all sensation in the parts supplied by the superior maxillary nerve was completely destroyed.

June 12.—Patient has not slept during the night. Pulse eighty-four; skin natural; tongue dry and slightly furred; complains of itching of the alæ nasi, which is not relieved by friction. Ordered potass. bromidi and chloral hydrat. gr. xviii. of each, to be taken at bedtime, and repeated every hour until sleep is produced.

June 13.—Took two doses of the medicine in the early part of the evening, and slept until three o'clock this morning; then took another dose, and slept until six o'clock. Feels better this morning; has eaten a good breakfast, which he enjoyed; pulse 84; wound is looking well. Syringed it out with a weak solution of carbolic acid in water. There is no pain, but the itching continues.

June 14.—Has taken one dose of medicine during the night; slept well; wound is healing kindly; pulse 84; complains of some neuralgic pains in the left cheek. Removed the pins and applied adhesive plaster.

June 15.—Pains in left cheek continue; pulse 90; bowels constipated. Ordered dose of citrate of magnesia.

June 16.—Feels better to-day. Bowels have acted. Pulse 84; wound doing well. Ordered tonic doses of sulphate of quinine

June 17.—Less swelling about the face than before· Pulse 84.

June 19.—Patient out walking to-day; remained out two hours.

June 21—Goes out walking daily,and is improving rapidly. Has very little pain of any sort. Pulse 68. Very light discharge of pus from the wound.

June 25.—Intends to return to business to-morrow. Wound discharges only a few drops of pus during the day.

He resumed his business the next day without pain or inconvenience.

I desire to add, in connection with the above notes, that cold water dressings were applied to the wound after it was closed, and continued for three days. The wound was carefully syringed out every day for about two weeks. During the first four days there was a slight oozing of blood serum, and after this followed a slight flow of pus. The patient remained in bed only one day. The wound was perfectly healed at the end of six weeks. The general health has continued to improve from the time of the operation to the present date.

The neuralgia which showed itself on the left side of the face has disappeared; it was of short duration and at no time severe, although the patient—a nervous subject—was seriously annoyed by its presence, in anticipations of future sufferings.—*Medical Record.*

ARTICLE VII.

Fibro-Cystic Tumor of Inferior Maxilla—Excision of Right Lateral Half of that Bone.

This patient, Miss P. L——, aged 20, is from Hartsville Tennessee, and is acccompanied by her most excellent and kind physician, Dr. Dyer. She is the subject, as you see, of a large tumor, which occupies the right lateral half of the inferior jaw bone. Three years since it was first noticed as a small globular swelling, unaccompanied with pain or tenderness, just anterior to the angle of the jaw. It grew gradually, until it had attained the size of a goose-egg, when Miss L—— came to the city to place herself under my treatment. I was absent at the time of her visit. Prof. Nichol examined the growth, and reports that the tumor occupied the posterior third of the body of the bone, the ramus not involved; smooth, hard, and seeming to spring from the bone, and about the size of a goose-egg.

The lady was advised to return to her home and come back in a month, when I would have returned. Unfortunately, she listened to the advice of some person, and placed herself in the hands of a notorious quack styling himself, "Indian Doctor," who promised to remove the growth by his wonderful blood-purifier. As a matter of course, she obtained no benefit from the medicine, the tumor pursuing the even tenor of its way, without let or hindrance, until now it has assumed huge proportions. It is now, as you see, as large as the two fists of a man, extending from near the symphisis of the chin to the articulation, reaching far down in the neck, and encroaching high up on the superior maxillary. The skin covering the growth is natural in appearance; the surface of the tumor pretty regularly globular, and smooth, with points here and there, which give evidence, by touch, of the presence of fluid; while at other parts it is hard and firm, as if its walls were formed of bone. It is not painful, nor tender upon handling. The general health of the patient is excellent.

I regard this tumor as benignant, and of the class Fibro-Cystic, which commenced its growth in the cancellous structure of the bone, and has broken up the bones by its gradual increase. If an operation had been done in May, 1870, when the patient first came to see me, it is probable that the cyst might have been opened, and a pledget of lint placed in it, so as to excite granulations, and bring about its contraction and complete cure. Nothing but an excision of nearly one-half of the lower jaw will do now. Excision of a portion of the jaw is an American operation—in fact, a

Tennessee operation. It was was done by Dr. Deaderick, of Athens, East Tennessee, in 1810.

To remove the jaw, with the tumor attached, I will commence by pushing this sharp-pointed bistoury to the bone, just below the red border of the lip, and making a perpendicular incision to the base of the jaw, then under its lower border to its angle, thence up over the posterior part of the angle to a part half an inch below the zygoma. This large semi-circular flap is to be dissected from the tumor, and turned upwards; the lower part, that which is encroaching on the neck, is likewise to be uncovered by the knife. Then, the canine tooth having been extracted, the bone is to be divided at that point, by the saw and bone forceps. The soft parts, on the inner side, are to be separated from the bone as far as the angle, when it (the bone) is to drawn outward, and the knife kept constantly in contact with it, until the coronoid process is freed, and the articulation is opened, when the remaining attachments can be divided with impunity, and then the whole mass separated. Of course the facial, submental and transverse facial arteries, will be divided, and give rise to very free hemorrhage; and unless the precausions mentioned above be observed, of keeping the knife close to the bone, from the angle to the articulation, there is danger of wounding the internal maxillary artery; the hemorrhage from them can be arrested, for the time, by the little pincettes, and the ligatures applied when the operation is finished. A piece of lint, saturated with a solution of carbolic acid, should be applied to the cut surface in the mouth, and the flaps brought back to their place, and fastened with the silver suture.

For a few days, the swelling will we so great as to interfere with the process of swallowing. In one case, I had to resort to the stomach-tube, in order to get nourishment into my patient's mouth, for more than a week. This, however, was an exceptional case. Generally, a sufficient amount of liquid can be swallowed to sustain life until the swelling subsides.

(The operation was then performed. It was found tha the bone had been broken in two parts by the growth of the tumor, above the angle, and the coronoid process and articulating head of the bone had to be removed separately, which was effected by grasping these parts by the Ferguson's lion-toothed forceps, and dissecting them out cautiously. The tumor, upon examination, proved to be cys ic, its walls formed of dense fibrous structure, strengthened here and there by plates of bones which had been thrust out by the growth, having dense, strong septa passing through it at various points, forming smaller cysts, each containing a fluid, very much like the white of egg. The patient is fast recovering, is able to be up, and the deformity resulting from the operation is very slight.)—*St. Vincent's Hospital Reports.—Nashville Journal of Medicine and Surgery.*

ARTICLE VIII.

Splitting of a Tooth by Decomposition of the Pulp.

BY J. H. M'QUILLEN, M.D., D.D.S.

C. G., Esq., called upon me in the first part of October, 1871, complaining of severe pain in the right superior first bicuspid; the pain had continued for several days, and had been a constant source of annoyance. On examination, the tooth was found perfectly sound, with not the slightest evidence of any defect of structure, or decay; the gum around it, however, was somewhat inflamed and swollen, and on striking the tooth with an instrument, or on the occlusion of the jaws, the pain was increased in intensity.

After a careful consideration of the case, I stated to the patient that I had reason to believe that his difficulty had its origin in the calcification of the bulbous portion of the pulp of the tooth, exhibiting to him at the same time, in illustration of my meaning, three fine specimens of calcification of the pulp, which had been forwarded to me by Dr. G. W. Matteson, of Michigan. The calcification in his tooth had apparently excited a certain amount of irritation in the remaining portion of the pulp, and this had been extended to the membranes covering the root and lining the alveolus. An application of aconite and iodine was made to the gum, which afforded decided relief to the patient. This application was repeated two or three successive mornings, with the same result. At the expiration of this time the patient, being engaged on an important case in court, was compelled to discontinue his visits to my office. Something like two or three weeks passed over without hearing from him, when I recived the following note:

"DEAR DOCTOR.—With your permission, I will stop at the office to-morrow, at half past eight. Is it possible that the solidification or ossification of that central pulp which you explained to me could have been accompanied by expansion, and thus have broken the tooth in two in its length? I think the fissure is there. Truly yours, G."

At the time appointed the gentleman made his appearance, and, on examination, a longitudinal fissure dividing the two cusps was readily perceived. The pain in the tooth during his absence had returned with increased intensity. All of a sudden it ceased, end then he discovered the fissure dividing the tooth into two halves.

After completing the examination, I remarked that my previous diagnosis had not been correct, that his difficulty had evidently been due to a devitalization of the pulp, from some cause or other, and that the dead pulp had undergone decomposition, and gases had been generated in the pulp cavity, which had exerted sufficient force to split the tooth.

I had heard and read of such cases before, in some of which the writers stated that the cleavage or bursting of the tooth had been attended with a loud explosive sound, seeming to the patient like the discharge of a pistol. This was the first case of the kind, however, which had ever come under my own observation. I advised the immediate removal of the tooth; and, as the patient did not desire to to suffer unnecessary pain, we called upon Dr. T.R. Thomas, who administered the nitrous oxide, and it was extracted while he was completely under the influence. After the removal, the fracture was found to extend longitudinally through the centre of the tooth to the point where the buccal and palatine roots bifurcated. The greater portion of the palatine root has been absorbed, while the bulbous portion of the pulp cavity was occupied by the remains of the putrescent pulp.

The case was very interesting and instructive to me, as I had been rather skeptical with regard to the description of cases of a similar character that I had met with heretofore. The evidence presented in this instance was so unmistakable and convincing, that I could arrive at no other conclusion than that the cleavage was due to the force exerted by the gases which had been formed in the pulp cavity.—*Dental Cosmos.*

ARTICLE IX.

Simple Test for Arsenic, Antimony and Phosphorus.

The solution of the substance to be examined is first considerably diluted with water, and poured into a wide-mouthed bottle, to the cork of which are fastened a number of pieces of parchment paper, previously saturated in acetate of lead, nitrate of silver, and sulphate of copper. A few drops of sulphuric acid are now added. some pieces of zinc thrown in, and the cork put in. In case any gases are liberated, they will react upon the strips of paper, and the color will disclose to what particular element the reaction is due. Phosphuretted hydrogen does not blacken nitrate of silver and acetate of lead, but does act upon sulphate of copper. Antimonetted and arsenetted hydrogen do not affect the nitrate of silver and sulphate of copper, but blackens the lead salt. Sulphuretted hydrogen, however, blackens all three of the above metallic solutions. In order to decide what elements are present, the strips of paper are to be macerated in a solution of cyanide of potassium. If the coloration immediately disappears, it was due to the sulphuretted hydrogen; if it slowly changes in cold, and more rapidly in heat, it was caused by phosphorus or antimony; if it only bleaches a little and turns brown, and does not disappear when heated, it may be traced to arsenic. For ordinary purposes and rapidity of work, this method appears to be sufficiently accurate, and will enable the operator to dispense with the more cumbersome Marsh appartus.—*Med. and Surgical Reporter.*

MONTHLY SUMMARY.

Chloral as an Antiseptic.—Mr. Stodart, of Bristol, has recently examined the stomach, lung, heart, kidney, and spleen of a patient who died from an overdose of chloral hydrate. "The first thing," he says, "that struck me, was the very extraordinary way in which the several portions were preserved. Even now, although more than a week has elapsed since death, yet not the slightest sign of decomposition has taken place, nor any unpleasant odor. This doubtless is the effect of chloroform in the tissues."—*Med. Press and Circ.*

Lemon for a Cough.—Roast the lemon very carefully without burning it; when it is thoroughly hot, cut and squeeze into a cup upon three ounces of sugar, finely powdered. Take a spoonful whenever your cough troubles you. It is good and agreeable to the taste. Rarely has it been known to fail of giving relief.—*Druggists' Circular.*

Treatment of Croup by Inhalation of Glycerine.—A German physician, Dr. Stehverger, recommends the treatment of croup by the inhalation of pure glycerine through one or other of the well-known forms of atomizing apparatus. He was led to try this remedy for croup from observing its good effects in cases of hoarseness and loss of voice. After application the cough becomes more free and moist, and children are enabled to sleep almost immediately upon being relieved by the inhalation. It is, however, believed to be of importance to make use of the remedy early and frequently, as, if delayed, it may have no effect whatever. If the glycerine be pure, it may be used unmixed; if not, it should be diluted with a little water. The inhalations are repeated, according to the necessity of the case, at intervals of from half an hour to an hour and a half, and for about fifteen minutes at a time. The effect of the glycerine in this case is supposed to be due to the fact that the secretions of the mucuous membrane are thereby increased and tumefaction reduced.—*Druggists' Circular.*

Influence of Tobacco in Diseases of Nerve-Centres.—In the *Bulletin de l'Association France. "cont. l'Abus du Tabac,"* M. Tamisier states that out of fifty-nine grave affections of the nerve centres observed from 1860 to 1869 among men, forty occurred in smokers. In fifteen of hemiplegia, nine abused tobacco and two used it moderately; four did not smoke. Of eighteen cases of paraplegia, five were great smokers, three moderate smokers, and ten abstained from tobacco. Out of twenty cases of locomotor ataxia, fourteen were great smokers, five moderate, and one abstainer. Tamisier thinks that it is especially, if not wholly to this cause, that we must attribute the disease in the majority of cases of hemiplegia and of ataxia he has noticed since 1860. M. Lefevre, of Louvain, thinks it indubitable that excessive smoking causes paralytic mania: because, 1st, nicotine causes in animals progressive enfeeblement of the muscles of motion up to paralysis, and congestion of the nerve-centres. 2nd, Analogous symtpoms have been noticed in numbers of persons who abused tobacco in smoking or chewing. 3d, It has been found in all countries that there is a constant relation between the consumption of tobacco and the increase of general paralysis.—*The Doctor. Boston Med. & Surg. Journal.*

Transplantation of Mucous Membrane.—At a meeting of the College of Physicians and Surgeons of Vienna, Dr. Czerny (*Am. Practitioner*) exhibited a case of transplantation of the mucous membrane of the nose upon a granulating surface of the upper arm. He spoke of three cases he had experimented on in this way, and one in which he had taken the mucous membrane from the mouth. The mucous membrane in one instance was taken from an extirpated polypus, and transplanted two hours after its removal. It had lost on its new ground its villi, and had changed into basement epithelium.—*N. Y. Med. Record.*

To Avoid the Ague.—The first suggestion, of course, is to leave those districts where this troublesome complaint prevails. Sometimes, however, one's residence cannot well be changed. To persons so circumstanced, there are preventions by the use of which the majority might generally escape it, which are referred to in the *Journal of Health* as follows:

1. Avoid exposing themselves to the malarial air after sunset and before sunrise. 2. Occupy rooms at night on the sunny side of the house and up stairs. 3. Build a fire in the house as soon as the dew begins to fall. The heat of the fire will do much to kill the malaria. 4. Keep the skin healthy and active by a thorough bath every day on rising, in a warm room, with sufficient friction to produce a healthy reaction. 5. Keep the bowels open by a proper diet. In nine cases out of ten the cause of ague would be easily overcome if the depurating organs were not overtaxed and morbid matters allowed to accumulate in the system to oppress it.

An Enormous Collection of Earthy Matter in a Human Lung.—By V. Gorup-Besanez.—The two cases were under the care of Prof. Zenker; V. Gorup-Besanez made the chemical examination of the lungs,

One was a woman who was employed in the manufacture of the books of thin red paper in which gold-leaf is placed. Fifty-seven grm. of one lung was incinerated, the ash treated with muriatic acid and examined for oxide of iron, of which 0.828 grm. were found. Supposing the oxide equally distributed through both lungs, the total amount would be between 21 and 22 grm.

The second case was a manufacturer of ultramarine. Two hundred and twenty seven grm. were incinerated and the ash remaining gave 3.1935 grm. siliceous sand, 0,3298 grm. quartz-sand, and 0.329 grm. of oxide ef iron.

Considering the total weight of both lungs 1500 grm., and these substances to be equally distributed, the total weight ef sand, &c., would be 29.86 grm.—*Annalen d. Chemie u. Pharmacie.*

Posture of the Head in Sleeping.—It is often a question among people who are unacquainted with anatomy and physiology, whether lying with head exalted or on a level with the body is the more unwholesome. Most, consulting their own case on this point, argue in favor of that which they prefer. Now, although many delight in bolstering up their heads at night and sleep soundly without injury, yet we declare it to be a dangerous habit. The vessels in which the blood passes from the heart to the head are always lessened in their cavities when the head is resting in bed higher than the body; therefore, in all diseases attended with fever the head should be pretty nearly on a level with the body; and people ought to accustom themselves to sleep thus and avoid danger.—*Home and Health.*

Local Anæsthesia.—Dr. Spessa (*Lancet*) "states in the *Bulletin des Sc. Med.* (Italy) that he has succeeded in preventing pain, during the slitting of a fistulous tract, by injecting a solution of morphine into the tract before the use of the knife. The same author had occasion to touch the vulva vegetation of a young girl with butter of antimony; the pain was very acute, but disappeared on the part being brushed over with a solution of morphia. A boy of fifteen, suffering from hip-joint disease, required an issue over and behind the great trochanter. An injection of morphine was first made over the region, and Vienna paste applied, which latter remained about eight minutes. The paste did not give any pain."—*Medical Cosmos.*

Cause of Death from Chloroform.—At a recent meeting of the Medical Library and Journal Association, Dr. A. H. Smith read an interesting paper on One of the Causes of Death from Chloloform, advancing the view that in some cases the serious results induced by this agent might be due to its local anæsthetic action upon the respiratory organs. Not only are the air-cells exposed directly to the vapor, but the blood brought to the lungs is loaded with the anæsthetic. The lecturer thought that the effect of this double dose might be to deaden the *besoin de respirer*, that instinctive sensation which—analogous to the feelings of hunger and thirst—impels the reflex act of respiration.—*Med. Gazette.*

Zinc Poisoning.—In the *Journal of Chemistry* we find reported a case of chronic zinc poisoning, which was traced to the use of a submerged galvanized iron pump. On inspecting the condition of the pump, it was found that the coating, over a portion of the surface, was entirely removed, and over the remainder was thoroughly corroded, so as to be readily removed with the finger. The prominent symptoms in this case were headache, nausea and gastric distress, pain in the larger joints, and partial paralysis of the lower limbs and the right arm. Recovery, even after removal of the cause, was very slow and imperfect.—*Detroit Review of Medicine.*

Test for the Genuineness of Silver Plating.—Van Dingler, in the *Polytechnische Journal,* gives the following simple method of distinguishing genuine silver from baser imitations:

Having carefully cleaned the metalic surface, place upon it a drop of a cold saturated solution of potassium bi-chromate in nitric acid, and wash off immediately with cold water. If the surface is silver a blood-red stain, consisting of silver chromate is formed. On German silver or Britannia ware a black or brown spot results.—*New Remedies.*

Test for Arsenic.—Bethendorff has lately discovered an extremely delicate test for arsenic, which is, moreover, unaffected by the presence of antimony. The suspected liquid is mixed with hydrochloric acid until fumes are apparent, when chloride of tin is added, which produces a basic precipitate containing the greater part of the arsenic as a metal, mixed with oxide of tin. It is stated that arsenic may be detected by this test when it forms one millioneth part only of the solution.—*Detroit Review of Medicine.*

Soda Mint.—This is often prescribed as an antacid and carminative, and is prepared, according to the "Journal of Pharmacy," as follows:

℞.—Sodæ Bicarb, ℥ss.;
Spt. Ammon. Aromat., ʒi.;
Aquæ Menthæ Pip., Oj.

M. Dose, from a desert spoonful to a tablespoonful for adults; from half to one teaspoonful for infants.

Sulpho Urea.—Dr. B. W. Richardson, of London, has been recently experimenting with this anæsthetic. It is a light, volatile fluid, having an agreeable vapor, and in some cases insensibility was produced by it in fifteen minutes.—*Virginia Clinical Record.*

Bullet over Nineteen Years in the Brain.—The *Journal of Psychological Medicine*, July, 1871, contains the following, which is taken originally from an Itallian Journal: Joseph Solen, a lawyer in Venice, was shot in a duel, June 16th, 1850. The ball entered the head above the right ear. Prof. Cortesi saw the wound five hours afterwards. For a considerable time his memory was weak, and vision was somewhat disturbed. In time, however, these two disturbances disappeared, his mind became as clear and his judgment as good as ever. He now complained of nothing but a painful sensation in the back and in the lower extremities, especially in the right, which became more acute wnen he coughed or sneezed, and extended to the head. He died of pneumonia in December, 1869. The autopsy displayed a funnel-shaped cicatrix above the right ear, and a notable thickening of the skull. On the petrous portion of the temporal bone, and on the border of the tentorium, a dark body was found which consisted of two pieces sf lead separated from each other by a splinter of bone. Running into the substance of the brain there was a canal ten centimetres in length at the bottom of which was found a piece of bone.—*Medical Times.*

Test Solution for Pus.—A saturated alcoholic solution of guaiacum exposed to the air till it acqnires the property of giving a green color with potassium iodide, is said by Dr. Day, of Geelong, to be a good test for pus. When added to liquid pus, or dried pus moistened, it gives a clear blue color.—*Michigan Medical Journal.*

Chloral as an Antiseptic.—Mr. Stodart, of Bristol, had occasion, recently, to examine the viscera of a patient who had died from an over-dose of chloral. He observed that the tissues were preserved in an extraordinary manner. Even after the lapse of a week, no sign of decomposition was apparent.—*Medical Press and Cirular.*

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The Prevention of Abscesses in Hyperdermic Medication.—By Reuben A. Vance, M. D. W. Baldwin & Co., Publishers, New York. Reprinted in pamphlet form from the "Medical World."

The Mutual Relations of the Medical Profession. Its Press and the Community. By Dr. Storer, Jr. (Horatio.) Published by James Campbell, Boston. An able address delivered at the annual meeting of Association of Medical Editors, on May 1st, 1871, at San Francisco, Cal.

Medical Education in America. By Henry J. Bigelow, M. D. of Harvard University. An excellent address read before the Mass. Medical Society, June 7th, 1871. Published by Welch, Bigelow, & Co., University Press, Cambridge.

Vick's Illustrated Catalogue and Floral Guide. James Vick, Rochester, N. Y., Contains over one hundred pages, printed on tinted paper, with four hundred engravings of flowers, plants and vegetables. The two colored plates are superb, and the present number excels even that of last year. Mr. Vick certainly merits all the honor he is receiving both at home and abroad.

EDITORIAL DEPARTMENT.

The Dental Cosmos.—Prof. J. H. McQuillen, after a service of thirteen years, has closed his editorial connection with this magazine.

With professional engagements and collegiate duties occupying all the working hours of the day, it necessarily follows that magazine and other work must be attended to at times which the majority devote to social enjoyment; and only those engaged in such duties can estimate the sacrifice at which they are performed.

The honor of having maintained the *Dental Cosmos* in the front rank of dental literature, may be equally divided between Prof. McQuillen and its enterprising Publisher, and while we regret this change, we are pleased to learn that Prof. McQuillen's pen will yet be employed, as time and opportunity may offer,—in contributing to the literature of the profession.

Chloral in Toothache.—In the "British Medical Journal," Dr. David Page states that he has been for some time in the habit of using *chloral hydrate*, not only as an internal sedative in cases of severe dental neuralgia and of caries where it was at the time inadvisable to permit extraction, but more frequently as a direct local application to the carious tooth. A few grains of the solid hydrate introduced into the cavily of the tooth upon the point of a quill, speedily dissolve there; and in the course of a few minutes, during which a not unpleasant warm sensation is experienced, the pain is either deadened, or more often effectually allayed. A second or third application may be resorted to if necessary. The hours of agony that various circumstances may otherwise entail, are in this way avoided; and in the last instance under my notice, a young lady in a delicate state of health, suffering intensely from a carious tooth, received immediate relief from this application.

Dentistry and its Difficulties.—In the "London Lancet," we find the following report of a paper on Dental Pathology: "The difficulties and accidents of dental surgery are very ably and candidly discussed in a paper by Mr. W. A. N. Cattlin, F.R.C.S., reprinted from the "Transactions of the Odontological Society of Great Britain." Mr. Cattlin speaks from a very large experience. He has published with his paper five sheets of illustrations of specimens of diseased teeth, from the collections of Mr. Cartwright and Mr. Tomes, and from his own. The way in which they have been photographed in the first instance and again taken from the photographs is very effective. They supply quite a large and beautiful illustration of the diseases of teeth and the difficulties of the dentist. Mr. Cattlin's remarks on peculiar positions of the wisdom teeth, on the danger of producing fracture of the tuberosity of the superior maxilla in extracting the third upper molars, and on the steps to be taken to avoid fracturing the floor of the antrum in drawing teeth in this neighbourhood which offer any peculiar resistance, are worthy of attention, as also are his criticisms of various recent instruments and operative precedures. A peculiar case is related of a diseased soft state of the alveolar processs in which canaliculi were absent. Mr. Cattlin, while a thorough specialist, brings to the elucidation of his subject light from all quarters, and speaks at once like a physician and physiologist in treating of dental hæmorrhage, of the various reflex effects of bad teeth, sometimes much overlooked, and of the subject of anæsthesia, in which dentists have an unusal experience. Mr. Cattlin has studied the relation of asphyxia to anæsthesia. In his former experiments he failed to produce anæsthesia by simple suffocation brought about by the reinspiration of the same air. But, making a similar experiment lately, and carrying the asphyxia a step further, he has succeeded in producing perfect anæsthesia, under which the animal was operated on, and from which it perfectly recovered."

Removal of a Fibrous Tumour from the Roof of the Mouth.—In the same journal the following operations are described:

The patient was a woman of about twenty years of age. From the surface of the hard palate, to the left of the median line, there sprang a tumour of the size of a large filbert, somewhat lobulated, and covered with healthy mucous membrane. As the roof of the mouth was rather low, this tumour sufficed to fill the entire cavity of the closed mouth. An incision having been made in the mucous membrane, the tumour was readily turned out by means of an elevator, and proved, as had been suspected, to be of the fibrous variety.

Operation for Hare-lip, with Removal of the Intermaxillary Bone.—One operation had already been performed on this patient, who was about one year of age; but no union had been effected. This result Sir Wm. Fergusson attributed to the omission to remove a projecting intermaxillary bone. He observed that the operation could not be said to have been really completed without the removal of the projection in all cases where it exists; because, as the teeth which it evolves never grow well, no good reason can be adduced for preserving it. The cleft was in the right side, and extended to the hard and soft palates.

Sir W. Fergusson operated on two other patients, adults, for cleft in the hard and soft palates. He directed his attention to the latter only, reserving the anterior portions of the fissure for a future occasion.

Excision of the Superior Maxilla for Epithelioma of the Cheek and Hard Palate.—Epitheliomatous growths had been removed from the patient's cheek on two previous occasions, twelve and eight months back respectively. The third recurrence was estimated to have been in existence about sixteen days before the operation in question was undertaken. In the middle of the cheek, and in the cicatrix of the former incisions, was an indurated swelling of about the size of a filbert, surmounted by a small sore, which presented the usual epitheliomatus characters. The greater part of the left hard palate was also involved; there was no apparent affection of the adjacant glands. The patient's general health was very good. For the operation, an incision carried from the external angular process of the frontal bone and round the tumour, skirting widely the diseased tissues, and prolonged to the angle of the mouth, was found amply sufficient. As the patient's breathing gave rise to serious apprehension towards the close of the operation, the floor of the orbit was removed for the sake of expedition; the whole of the left soft palate was also removed. The hæmorrhage was readily controlled by torsion. The wound was brought together by means of carbolized gut sutures and two hare-lip pins at the points of greatest tension. The patient was at first troubled with monocular diplopia, probably from loss of the attachment of the inferior oblique muscle. He made an excellent recovery.

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ARTICLE I.

Exposed Pulps.

BY ARTHUR J. FORD, D. D. S., of Atlanta, Ga.

I have for years been much interested and exercised in every means devised, and all operations tending towards the preservation of the vitality of exposed pulps, and have ever greedily caught at every proposed method that was in the least feasible or that pointed towards the attainment of this desideratum, and have as anxiously hoped to at last alight upon some certain and reliable remedy for the great and crying evil of the wholesale devitalization of dental pulps, as ever did the alchemists of old, yearn to discover the "Philosopher's Stone," and I believe we have met with greater success than the above named ancient gentlemen, and I feel almost constrained to exclaim "Eureka," at the results attained by the use of oxychloride of zinc or "Cement Plombe," and kindred preparations for this laudable purpose. At all events I speak for myself when I say that I have had more uniform and fortuitous results, from the careful and judicious use of this article (Cement Plombe) than from any former operation devised, as a successful protector of this extremely sensitive organ.

I herewith transmit to you a carefully kept register of 78 of such operations performed by myself, with the results, within the past twenty months, together with a diagram exhibiting the position of every cavity treated, and with marginal notes where particular cases are indicated; all not specially marked are doing well as far as heard from. The large majority I have seen recently and many I meet almost daily, most are regular patients of mine, and but few accidental. I think I can say without boasting, I have been as successful as most that have tried this mode of operating, and considering the size of our community, I have had quite a large proportion of subjects. By the register appended, you will perceive that lately the cases have increased quite rapidly, having filled this year to date, (December 15th,) 62, against 16 for last year. I consider this due to the success I have had in this mode of treatment. Prior to my adopting this capping, I used to have almost constantly from two to eight devitallized teeth on hand to be treated, and pulp cavities to be filled, which was arduous to the operator and fatiguing to the patient. Now I rarely destroy a pulp, and never except in extreme cases. I could give quite a number of cases similarly treated, anterior to the first date of this register, as I have been gradually adopting this practice since June 1868, but the cases were so scattering that I kept no certain record of them, but some that I know were so filled in 1868 are perfectly successful.

I have been lead to the consideration of this subject, and to come forward as one of the champions of this mode of treatment, from the fact that I have heard eminent men in our profession, quite recently condemn it, and express many doubts of its being permanently successful, even under the most favorable circumstances, and having, as I believe, been successful in a large number of cases, for the period of at least two, and in some instances nearly four years, I most heartily tender my abuttal testimony.

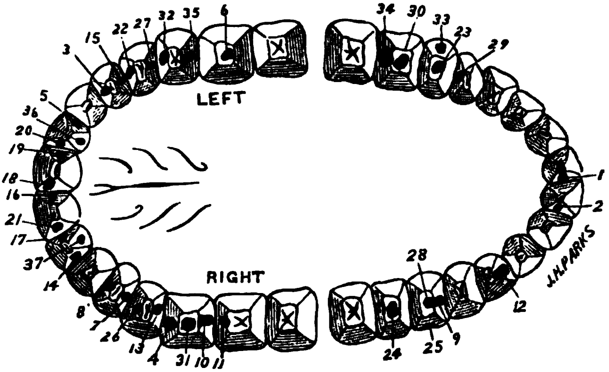
Since writing the above I have received the "Dental Cosmos," wherein I find two articles, one from the pen of Dr.

S. B. Palmer, of Syracuse, N. Y., a gentleman of known eminence in our profession, wherein he undertakes to fill a tooth, "*the pulp exposed and sensitive*, or *where it still retains its vitality*, (Italics mine.) He casts aside the practice of capping the pulp, on account of repeated failures, and decides to destroy the nerve (meaning of course the pulp) and remove *all that is possible*, (Italics mine again) from the pulp cavity and canal of the fangs." Now would it not have been better for Dr. P. to have first endeavored by the aid of the oxychloride of zinc, to preserve "this pulp exposed and sensitive," and thereby not only preserve the tooth in health and *color* (for every devitallized tooth will become dark, though if properly treated I grant but a trifle) but actually obviate to his patient many sittings and to himself, the operator, an extended, frequently anxious, and often tedious operation; again, he admits the possibility of not being able to remove entirely in all cases all of the pulp, (upper bicuspids and molars I presume) and in such cases a failure is possible to say the least; whereas if the capping is not successful, he still has left him the "dernier resort" of extirpation. I have had only two such cases that resisted capping, one of a central incisor and the other a superior molar; I devitalized both and have saved them to date. Both these cases were hardly fair tests, as they had been maltreated prior to my taking them in hand.

The other article is from Dr. Redesicks, of Iowa, who demonstrates by a series of experiments the many difficulties to be overcome in extirpating pulps *entirely*, and filling canals, which speaks to my mind, volumes in favor of capping, if successful, and I think I can show it has been with me, and therefore can be with any careful operator, thereby obviating all the worry and likelihood of ultimate failure.

Some eminent practitioners aver, that the pulp is not preserved by this process of capping, but is finally destroyed and taken up by the absorbents and the canal is left vacant but causing no trouble. This I deny, but even granting it true, if the tooth is retained in ease and usefulness, is not the practice commendable, and the desired result attained?

The following is the diagram and register above alluded to:



1870.

April 29th, Mr. J., No. 32. May 17th, Miss E. C., No. 13. May 24th, Mrs. R., No. 32. May 25th, Miss L. No. 15. June 9th, General R., No. 10, doing well last August. June 11th, Mr. R. H., No. 10. July 15th, Mr. F., No. 32. August 8th, Miss O. R., No. 9. August 11th, Mr. R. No. 34; this case has been and is yet a little sensitive, Deccember 1871. August 13th, Miss T., No. 20; doing well, child about 12. September 21st, Mr. C., No. 35. October 27th, Miss H., No. 26; this case did very well, but the patient through neglect, permitted the tooth to decay on the posterior approximal surface, the pulp to become much exposed and inflamed, and insisted on having pulp devitallized; after removing the pulps, the capping could readily be seen intact on the anterior exposure. November 15th, Mrs. Eichberg, No. 5. November 25th, Miss J., No. 36 and 37. December 12th, Miss M. C., No. 3.

1871.

January 9th, Miss F. B., No. 1 and 2; a child about 11 years. January 12th, Mrs. H., No. 3. January 23d, Mrs. H., No. 4; very much decayed. January 26th, Mr. B., No. 3. February 6th, Miss C., No. 5. February 16th, Mrs. H., No. 6. April 5th, Capt. P., No. 7; very large, doing well. April 21st, Mr. E., No. 8. April 25th, Mr. M., No. 4. May 1st, Capt. P., No. 9. May 10th, Mrs. M., No. 9. May 13th, Mr. M., Nos. 7 and 8; cupped on both approximal surfaces of the bicuspid, doing excellently. May 16th, Mrs. C., No. 10; not seen seen since, but would have heard if there had been any trouble. May 16th, Mr. W., No. 4; this was the case of a young man about 18; the pulp was severely wounded, and I considered it a doubtful case to save the vitality, but there has been no trouble, and I can inspect it at any time, as the patient is within a few doors of me and he would assuredly come to me if there had been any pain. May 22d, Mrs. M., No. 11; this was a failure, as the pulp was not only exposed, but had been for some time, and had been in a very inflamed condition. May 24th, Mrs. L., No. 12. May 25 Miss C. M., No. 13. June 14th, Mr. S., No. 9. June 28th, Mr. C., No. 14. July 5th, Mrs. A., No. 15. July 5th, Mr. V. G., No. 15; the tooth had ached considerably, but has proved a perfect success; I see the gentleman almost daily, December 1871. July 8th, Miss L., Nos. 5 and 16. Miss S. C., No. 15. July 18th, Miss J. No. 17. July 27th, Mr. C. Nos. 16 and 18. July 28th and 31st, Miss L., Nos. 17, 21, 16, 18, 19, and 20; these teeth were badly decayed, the pulps of the central incisors exposed on both approximal surfaces, and the lateral on the anterior. The patient was a young lady of 16. I saw the teeth quite lately and find them doing well. August 8th, Mr. H. No. 9; doing well lately; patient consumptive, December 1871. August '21st Miss J., No. 22. August 23d Mr. R., No 24; doing extremely well, pulp was very much exposed. August 23d Miss B., No. 23; this case was that of a child about 11 years; nearly the whole of the dentine was gone and the pulp nearly wholly exposed on its upper sfurace, yet up to date (Dec. 15) has never given a moment's uneasiness, not even at the time of the introduction of the oxychloride. August 28th, Mrs. D., No. 9; doing very well; patient extremely delicate and nervous. September

2d, Mrs. N., No. 25; doing very well; being a rather remarkable case, having decayed below the margin of the gum; buccal surface and pulp extensively exposed. September 5th, Mrs. C., No. 4. September 9th, my own little girl, No. 23. A very large cavity, pulp almost exposed, would have been if *all* the decomposed dentine had been removed; it never has given the least trouble. September 12th, Mrs. J., No. 13. September, 21st, Mrs. T., No. 23. September 26th, Mr. G. C., No. 26. October 10th, Mr. J., No. 27. October 10th, Mrs. G. H., No. 4. October 16th, and 20th, Miss G., Nos. 23 and 28; child about 12; doing well. October 25th, Miss S. J., No. 28; temporary tooth; pulp badly exposed and aching for some time; child about 8; never troubled since filled. October 28th, Miss C. B., No. 4; temporary tooth, very analogous to the above. November 1st, Mr. D., G., No. 10. November 2d, Miss M., No. 29. November 8th, Mrs. L., No. 6; *enciente.* November 10th, Mrs. M. D., No. 30. November 11th, Miss S. J., No. 23; temporary tooth, same patient and conditions as on October 25th. November 15th, Miss L., No. 31. November 18th, Mrs. R., No. 32. November 27th, Mr. H. C., No. 8. November 30th, Mr. C., No. 33; a very difficult and doubful case on the buccal surface, cavity as large as a good-sized buck-shot, and pulp very badly exposed. Filled it without giving any pain (*during filling*); ached some little on the evening of Dec. 1st, but has not troubled since. December 13th, Mr. C., No. 20.

ARTICLE II.

Dental Caries.

BY C. R. E. KOCH, D. D. S.

Read before Illinois State Dental Society.

The name Dental Caries has, by many authors, been felt to be inadequate to convey a correct idea of the malady, and various other names, such as mortification, gangrene, and nigritis ossium have been substituted in its stead; none of these, however, being as appropriate as the first, all the late writers have adhered to it. As we cannot possibly expect to effect regeneration, it would hardly be judicious to attempt another christening, and perhaps we had better conclude with Shakspeare: "What's in a name? That what we call a rose, by any other name would smell as sweet."

Much has been written upon this subject from the earliest days of our profession, as a branch of medical science, up to the present day, by men to whose eminently scientific attainments and laborious researches we owe our present professional status. Yet it is truly astonishing to see what widely differing theories are advanced by nearly all of them. Thus nearly all the early English and American writers held that caries in bone and in teeth is identical, the latter as well as the former being caused by morbid action within the bony structure, and differing in appearance only, owing to the more densely constituted structure of the teeth, which prevents the pathological development and reparative functions as they occur in bone. Those authors who dissented from this view generally, admitted that if it was not already so caused, they were not prepared to deny that it might not sometimes be the result of morbid action within the dentinal substance. I will not stop here to recite all the different theories advanced, and will merely mention these as being the most prominent and around which all the others centre.

We may define Dental Caries as that pathological condition of the teeth, under which a portion of their structures become impaired, disintegrated and decomposed. Generally it attacks the dentine and enamel; and also, frequently the cementum at the necks of the teeth; and upon portions of the roots from which the gums and alveolus have been wasted. It most frequently is symmetrical in its occurrence, that is, it attacks the corresponding teeth of each side in a like locality and manner.

I must confess that I am not a believer in the doctrine that dental caries can ever commence from within the dentinal structure. Unless some corroding agent has first been conveyed to the dentine from without, through an original or accidental fissure in the enamel, caries never attacks it first. Hence I cannot see even an analogy to caries in bone; that the teeth may be, or may become, more or less susceptible to the action of corrosive agents, through vital or accidental causes, admits of no doubt. In so much, I am ready to admit that it is the result of chemico-vital action, that is, it *may be* vital in its remote or predisposing, and *it always is* chemical in its immediate or exciting causes.

Professor Garretson, in his recent eminent work on "Diseases and Surgery of the Mouth," thinks that these chemical agents do not act chemically upon the tooth substance, and have little to do in its dissolution, except as they act as irritants and produce inflammation, which, (although in consequence of difference of structure, differs in appearance in dentine and bone,) is in dentine as well as bone, the true exciting cause.

Prof. Bond, in his "Dental Medicine," says: "Caries of the teeth is a chemical erosion, by the action of the fluids of the mouth and the accidental matter dissolved in them, upon the salts of which the teeth are mainly composed." And, although he does not say that true caries is never found in teeth, yet he thinks that as generally met with in teeth, it is the result of chemical erosion, by acids upon the earthy matter.

The only vital action which does ever occur in dentine as caries progresses is an attempt to solidify the contents of the tubuli (be these liquor sanguinis, fibrillæ, or nerve fibres) by calcification as a means of defense; and thus the dentinal structure, to the extent of this calcification, becomes devitalized. Non-vitalized structures cannot perform vital functions, nor have vital diseases; and even should we, for argument sake, admit that enamel, and dentine having its fibrillæ or nerve fibres calcified, are vitalized structures, yet the fact that teeth which have had their pulps destroyed and removed, and which certainly cannot then be classed among the vital tissues, will be acted upon just the same as other teeth.

The vital theory is made utenable by the following facts: Caries frequently attacks enamel first, for which I believe the possession of vitality has never been claimed after the eruption of the teeth. It never commences within the substance of enamel or dentine. It never occurs before eruption of the teeth. If it were not caused by external, physical or chemical influences filling would be no remedy; but, upon the contrary, would tend to increase the difficulty, as it would, of necessity, increase the amount of inflammation. Human or animal teeth, used as artificial substitutes, become likewise affected. Caries never returns in a perfectly filled tooth. The cementum is never attacked by caries unless it is first denuded of its protecting gum and alveolus, and thus made subject to external agents. Filling teeth does not cause them to become carious on account of injury to the dentine by irritation and inflammation; on the contrary, crowded and ill-shaped teeth, judiciously filled, will be more likely to remain free from caries, on account of relief from the pressure of contiguous teeth, and the prevention of the accumulation of external corroding agents. All these reasons go far to prove the unstableness of the vital theory, and prove, pretty conclusively, that the cause must be looked for elsewhere.

The fact that even diluted acetic acid will readily dissolve the healthy and perfect enamel of the teeth, after extraction, in a short time, so that it can be scraped with the finger nail, ought to be taken in evidence that external agents do act upon the tooth substance.

Erosion, as described by Prof. Harris, is the effect of acid action upon the enamel near the cervical border. The dissolved particles, being removed by the fluids of the mouth, always leave a polished transverse groove. This being another species of caries, is another illustration of the effects of chemical action, as there certainly is no vital action in the surface of the enamel.

Many attempts have been made, by various authors to classify the different varieties of caries, but as the disease, in its exciting causes, is nearly, if not always, the same; and as the difference in appearance is owing principally to the particular agent causing it, the different degrees of density in the tooth, or the rapid or slow progress of the disease, any such attempt must prove futile.

Oftentimes caries makes its advance and destroys the whole coronal dentinal substance before the patient is aware of the fearful trespass that has been committed upon his premises. From this procedure of the destroying agent, it has been inferred that the beginning of the operation was from within the tooth substance. There is no doubt, however, that in all such cases, a fissure, either original or accidental, existed in the enamel through which the acrid fluids permeated, thus performing their work quietly before the enamel gave way and exposed the ravages committed; or, perhaps, the most excruciating of pains may perform the duty of monitor.

When caries attacks the dentine first, the enamel over the affected part generally at first takes a slightly opaque hue, which, as the disease progresses, grows darker, so that by the time the destruction approaches completion, it may present the appearance of a deep ash color. It is impossible, however, to give a correct description of its appearance, as this is in a great measure influenced by the color and texture of the teeth. Thus the pearly white teeth, which are softest, will most generally decay very rapidly, and present a blueish dark appearance, while yellow teeth, which are most dense, and hence give way to the attacks of the destroyer more slowly, will take a deeper yellow, brown or black shade.

Temporary constitutional disease may so affect the fluids of the mouth as to render them very acrid, and at the same time may so deplete the general vital functions as to render the teeeth more susceptible to the action of these fluids. Under these circumstances caries may advance rapidly. The general health being restored, and the secretions having again become nomal, the further progress of the disease may be arrested, and the already decomposed mass change color and assume the appearance of caries of slow progress.

Mr. Tomes holds that caries in the tooth is always heralded by slight uneasiness or pain from its incipiency. Particularly is this noticed by persons accustomed to bestow considerable attention upon their teeth.

When caries attacks teeth at their cervical line, and has penetrated the cementum, it is generally very sensitive, and I do not know that I can assign any good reason for this being more so in this case than in any other locality, as in any case the substance undergoing change is peripheral dentine. Oftentimes in excavating a carious cavity we find a *noli me tangere* at a point farthest removed from the pulp. We are very much indebted to the microscrope, as through its powers we have learned many things oblivious to us before, and I trust that it may yet succeed in explaining the pathology of sensitive dentine.

You have, no doubt, all of you seen the theory advanced in the April number of the *Dental Cosmos* of the current volume, by a brother in Brazil, who suggests that this condition is owing to a variety of animalculæ called denticolæ, which luxuriate in the carious cavity, and when disturbed by the rude evolutions of the excavator, seek refuge in the open mouths of the dentinal tubuli, and thus displacing part of the soft solids contained therein, by pressure upon the pulp, produce pain. I do not propose to enter into any argument upon this theory pro or con, but would suggest that the microscope ought readily to decide whether or not there is anything tangible in such theories. The most rational theory no doubt is that caries reaches the peripheral end of one or more uncalcified fibrillæ or nerve fibres, its progress not having been opposed by the zone of consolidation, which convey readily any sensation produced by contact of an instrument, acrid secretions or thermal changes to the nervous centers.

The causes of caries, so far as observed are numerous. It would be almost impossible, in a paper like this, to be very exhaustive in their examination, As we have seen before, they may be divided into predisposing and exciting causes.

Let us first look at the predisposing causes, which may be either hereditary, congenital or accidental.

That children, partaking in a marked degree of the general physique of either of their parents, will have a similarity in shape, structure and arrangement of their parents teeth, I believe is generally conceded, and unless this parent has become subject to the ravages of syphillis, or other transmissable constitutional vice, after his or her teeth were formed, or some derangement of the child's own constitution during the formative process has occurred, to alter the transmitted good condition of this parent's teeth, this law holds good. In other words, feeble parents, and those possessing poor teeth, will never find that their progeny have particularly strong teeth; whereas, parents who possess the strongest character of teeth, may fail to transmit these.

By congenital, we do not merely understand those causes which were operative during intra-uterine existence of the child, but also those which are so previous to the eruption or birth of the tooth. This class of predisposing causes is subject to a variety of conditions, chief among which are imperfect nutrition supplied to the mother during pregnancy and lactation, and the child up to puberty, and lack of the assimilation, either through the digestive organs failing to appropriate from the blood the elements required, or the tissues failing to appropriate from the blood the elements essential to them, either in quantity or quality.

Diseased condition of the decidious teeth may, by interfering with the calcification of the germs of the permanent teeth, leave a baneful influence upon the latter.

Among the accidental causes predisposing to caries, we must count, first, everything that will give more ready access to the action of the corroding agents; and secondly, everything that will aid in the formation of these agents.

Blows fracturing enamel or dentine, crowded and illy arranged teeth, the presence of supernumerary teeth, sudden thermal changes, as from hot tea to ice water, badly performed dental operations, &c., may be cited as of the first class. Any prolonged general derangement of the system, fevers, indigestion, nervous excitements, carious or otherwise diseased teeth, &c., are instances of the latter class.

Pregnancy is generally followed and accompanied by rapid progress of caries in the teeth. This may be owing to the fact, that all the vital energies are engaged in a remote direction, and thus the approach of the caries is not resisted by the formation of the zone of consolidation (of Tomes) or of calcification; or it may be caused by the fact, that the secretions in this condition become surcharged with acrid agents. But, we know that this end is accomplished—no matter how—and the old maxim, "for every child a tooth," upon examination may not be as preposterous as it may at a first glance appear.

The exciting cause is always of a chemical nature, and is either owing to the presence of acid or alkali, but most generally acid. I must confess never to have found an alkaline reaction in caries when applying a test, but believe that this must have been owing more to an improper procedure on my part than to the actual condition of the caries tested. The variety of caries in which the white, chalky mass remains, and presents the appeatance of having lost all its organic particles, certainly would cause one to believe that alkali must have been its cause. Even dilute acids will readily act upon perfectly formed and healthy enamel; but unless the dentine has become exposed, and is of a highly organized description, alkali will not act upon the teeth.

But no matter whether the agent is acid or alkaline, it is either held in solution in the fluids of the mouth, as they are secreted from the salivary glands and mucous membrane, generated by fermentation from the particles of the food in the interstices of the teeth; or it may be introduced as food, or as medicine. Acid eructations from the stomach, as in dyspepsia, often vitiate the fluids of the mouth. Carious cavities in teeth, and the remnants of teeth which have long since passed away, often serve as vessels for fermentation of particles of food. These agents sometimes act primarily upon the enamel, but more generally they penetrate the sulci of the molars and bicuspids, in which the enamel is not perfectly united, or any other fissure or opening, and reaching the dentine, act quite readily.

Before looking at the remedies with which to combat the evil of dental caries, let us briefly consider the consequences it may produce. The immediate result is usually a most severe toothache, resulting frequently in inflammation and suppuration of the pulp; in periosteal inflammation, alveolar abscess and loss of the tooth. Facial neuralgia, hemiplegia, and other affections of the nervous system, are often caused by carious teeth. The diseased condition of the teeth prevents proper mastication, and this, together with their foul and decaying matter becoming mingled with the ingesta, is the frequent cause of dyspepsia. Consumption is also said to be incited by the fetor of the inhalations. Deafness and functional difficulties of other distant organs have been ascribed as the result of caries in teeth. Insanity has been cured by the extraction of carious teeth.

The remedies at our hand with which to combat this universal enemy ought now to receive at least a brief notice, and as prevention should always receive our first attention, let us see what can be done by way of prophylaxis.

Understanding the causes, it would be an easy matter to say, avoid these and you will avoid the disease. And it is right here that we can be of most service to our patients.

In the case of a hereditarily poor condition perhaps less can be done than in any other case, but even here much may be accomplished by strict attention to hygienic laws. First and foremost, it is of the utmost importance that the constitutional health is always kept "at par," and especially so during the period of formation. Parents should be taught that the material out of which teeth and bones are made must be furnished in the food. Soil that is only capable of raising corn, which contains very little of the bone-earth, will not produce wheat unless previously fertilized with lime, which base largely enters into the composition of the latter.

We ought to point out that pastry and sweetmeats will aid in the formation of neither "bone nor sinew;" and that sugar, starch and fats only supply the calorifacient elements of food, and that for the truly nutrient elements we must look elsewhere. Eggs, milk and lean of meat are prominent representatives of the latter class.

We should teach the folly of throwing away two-thirds of the nutriment contained in the grain of wheat in the preparation of our flour; especially during the period of growth of the bony structure. The lime salts can, however, be abundantly supplied in other vegetable productions, nearly all the esculent roots containing them. Beans, cabbage, lentels, &c., and the pomaceous fruits, are also richly stocked with the phosphates. Hence it is by no means essential to become a Grahamite to practice supplying proper food for teeth and bones. The importance of this doctrine is particularly to be impressed upon mothers during pregnancy and lactation, as a lack of these ingredients in the food will certainly tell upon the mother's own teeth, if not upon those of the infant, as the latter may be nourished from the stores in the mother's frame.

It is always desirable to supply those elements of food in their organized form, but, as under certain conditions, the taste may become depraved, or very fastidious, we may substitute, instead of the products of nature's laboratory, those of the pharmacist, and supply the required elements in the shape of chemical foods, of which perhaps many formulas exist, and which rely upon combinations of the phosphates of lime, magnesia and iron for their efficacy. Whenever it is evident that nutrition is imperfect these phosphates are indicated.

If the elements contained in the food are not properly assimilated, of course the structures in process of formation must suffer. As this is very often the result of indigestion, it is essential that the cause be removed. Frequently carious teeth, by imperfectly performing the process of mastication, and by mixing with the food their integral and contained particles, seriously interfere with proper digestion. Such teeth should either be removed or restored to a healthy and serviceable condition.

The system should be generously treated with tonic, and fresh air exercise, especially to people of sedentary habits, ought to be encouraged. As food does not consist merely of tne ingesta—fresh air and the benign rays of the sun also being food—we ought not to disregard the importance of the latter. But perhaps all this would more properly belong to a paper on hygiene; therefore let us now proceed to consider direct remedial treatment.

First of all the teeth should be kept clean; and to this end we should not rely merely upon our toooth-brush, nor should we trust too much to our dentifrice, which, no matter how efficient it may be, yet cannot in all cases and places be effective. After eating, a quill or orange wood toothpick should be used, and, if possible a soft piece of cloth or silk be passed between the teeth, and drawn backward and forward, and up and down.

The matter of tooth powders has received considerable attention at society meetings, and various formulas have been recommended. It is extremely doubtful, however, if any formula can be devised which would be just the thing in all cases. It should be free from chemical or mechanical irritants, and yet possess detersive powers. If the mouth be in an inflamed condition, astringents should be added. As in most mouths there is an acid reaction, *chalk* is probably the most proper base, as this will neutralize any free acids; and even in alkaline mouths it certainly can do no harm. It may be extremely doubtful whether it is judicious to add agents capable of neutralizing alkali to a tooth powder, as the difficulty of controlling and defining the action of such agents ought not to be overlooked.

Perhaps ordinarily, precipitated chalk used as a dentifrice and allowed to remain in the mouth until it is washed away, especially at night,—and after eating acid fruits, will be as effective as any topical prophylactic. However, as it is much safer to prevent the accumulation of deleterious agents than to make topical applications to neutralize them, we should impress upon our patients the necessity of using the mechanical means, at our hands, to this end.

Cracking nuts and drawing nails with the teeth are feats which should be discouraged.

Prof. Garretson, in the work before referred to, denies that any injury, beyond an irritant one, can be produced by sudden thermal changes. The climatic changes, (which have been assigned as causes for the great extent of caries in teeth in this country) cannot very well have any direct effect upon the tooth enamel. The climate of California is probably as even a one as that of any other country, yet I am still to be informed that caries occurs less there than in the States east of the Rocky Mountains. That enamel of the teeth is cracked or fractured, similarly to glass, by sudden changes of temperature, can easily be demonstrated. By first subjecting a perfectly enameled tooth to the spray of ether or rhigolene, and suddenly plunging it into boiling water, cracks or fissures will be produced in the enamel. This, of course, is too extreme a test to occur within the oral cavity; still, it is best to avoid great thermal differences in food.

Salivary calculus, although never a cause of caries, except as it acts as an irritant to the soft tissues, and thus vitiates the secretion, should be removed.

Crooked, or very irregularly arranged teeth, should be corrected, in such manner as the exigencies of the case may require, either by regulating, removal of one or more teeth, or judicious filing. All mechanical irritation should be removed; artificial dentures, if worn contiguous to natural teeth, should especially be kept clean. All remaining roots of wasted teeth should be removed. Frequently powerful acids are given as tonics by physicians, and, as patients do not always know the composition of medicines prescribed for them, it is best to advise that all medicines be taken through a glass tube, so that their contact with the teeth may be prevented.

Sometimes, when caries has actually commenced, we may, in highly vitalized teeth (that is those of very young persons, or those in which calcification has progressed very slowly) by removing and preventing the action of the exciting agents, and the dietetic and hygienic treatment, as above indicated, prevent the further progress, and cause the more ready calcification and strengthening of the dentine. Nature often takes a similar course, in cases where a marked improvement in the general health has arrested caries of rapid progress very suddenly, and, if it existed in a self-cleansing surface, finally.

When caries has progressed to some extent, the treatment can only be topical, and must be mechanical in its nature. If it does not penetrate far beyond the enamel in lateral cavities, it can often be removed by the file and other suitable instruments; and if this is done in such a manner as to leave a perfectly smooth and polished surface, and one easily cleansed, and the patient is taught to observe proper care, and complies with his instructions, it will never return.

If so situated as to preclude this remedy, or if the carious cavity is too extensive, all the decomposed and softened matter should be removed thoroughly, especially from the walls of the cavity and the marginal edges of the cavity, and this cavity thoroughly filled with the most suitable material.

Should there not be sufficient healthy tooth substance left to support a proper filling, the only remedy at our hands is cold steel, in the shape of forceps.

The treatment of caries complicated with exposure or disease of the pulp or periosteum scarcely belongs here, and

I have only considered simple caries, as any complication must first be reduced to a simple form before the mechanical remedy can be applied.

As caries always attacks weak parts first, we ought carefully to search out these, and if the condition of the mouth demands, we should boldly proceed to fortify these by throwing up defensive works wherever an attack seems imminent.

Wherever in children we find the sulci of the molars or bicuspid in an imperfect condition of enamel fusion, and especially in children of weak constitutions and with soft teeth, it ought to be considered good practice to cut out this imperfectly formed enamel, shape into a proper cavity, and fill the same with gold. In doing this we need not fear the accusation of making holes for the sake of obtaining a fee, as the intelligent will appreciate our efforts, and will be glad to reward them. In the case that our patients cannot esteem or appreciate this operation, we must content ourselves with the applause of our own consciences.

When the teeth are atrophied, that is, either pitted or grooved or having thin or imperfectly formed enamel upon their exposed or self-cleansing surfaces, it is not always so plain what course of treatment is most indicated. Oftentimes, when this is the result of interference during the formative process by disease, and not of hereditary transmission—the general system recovering—the soft enamel may gradually become worn away, leaving under it a firmly calcified dentine which is scarcely secondary to enamel itself in resisting power.

Perhaps, unless the pits or grooves are very marked and extend entirely to the dentine, it would be best not to interfere at once, but to give admonition to the patient to observe the before named general laws and to present him or herself for frequent examinations, and thus by watching these teeth we may arrest caries as soon as it may set in.

It is impossible, however, to lay down laws for practice in all cases, and the operator must draw upon his observation and reflective powers—in short use his brains—before determining what ought to be done in any given case.

ARTICLE III.

Filling Teeth.

BY E. G. WHEELER, D. D. S.

Read before the Alabama State Dental Association, August, 17th, 1871.

To the thoughtful and considerate practitioner, this subject can never become tame or uninteresting, because it is the important subject to which he has devoted his time and energies. It is the burden of his thoughts, and if successful, the crown of his rejoicing. We propose to take a cursory view of the subject, with the object before us, to call special attention to *errors* in practice, that failures may be avoided; and to advocate correct theories so far as we know, that success may be obtained

Let us enquire what constitutes *success* in filling teeth? We answer first, to preserve the tooth from further decay. Secondly, to restore partially or wholly its lost contour. It is not enough that fillings should not become loosened or drop out. The tooth should be put in such a thorough state of repair, that the chances for further decay is very much lessened, if not wholly destroyed. This cannot be done unless depressions and fissures leading out from the main cavity are thoroughly excavated and filled. It frequently takes more time and labor to explore a fissure leading from the central cavity in a molar tooth, than it would to fill a tooth in a careless and imperfect manner, and when four of these fissures occur, the operation becomes protracted, and sometimes complicated; yet *success* demands that each should be pursued to its terminus. A neglect of this precaution frequently renders it necessary to replace the filling or add others within a few months or years, when, if honestly and intelligently done at first, no after work would have been necessary.

But perhaps even the honest operator is called to mourn over failures, more frequently in approximal cavities in bicuspid teeth than in any other class. Perfect success in many of such cases, is in some degree uncertain, yet the operation can be much simplified, and the chances of success much increased by adopting the following plan, which we have found uniformly successful:

In case the decay occurs between the first and second inferior bicuspids, we use a common separating file, making a free opening to the bottom of the cavity, and continue filing until the approximal surface is clearly defined. Then use small enamel chisels, cutting down the crown immediately over the cavity, until you have an opening extending to the grinding surface, of about the same size as the cavity below. The excavation being thus made, the entire cavity becomes fully exposed to view. In shaping the cavity care must be taken to have it properly dove-tailed into the body of the tooth, so that the filling cannot be displaced. The filling of a tooth thus prepared becomes easy, as it requires only direct pressure in a line with the tooth. By this method, at least two important objects are gained. First, greater certainty of good results. Second, a saving of masticating surface, as it avoids those extrensive V shaped separations which are necessary in the usual process, also because the part cut away to gain access to the cavity, is replaced by the filling. The same process applies to approximal cavities in molar teeth, and with a greater prospect of success than by any other plan with which we are acquainted·

We may safely remark that many failures may be traced to a prejudice against, or timidity in cutting away sufficient of the tooth substance that may be necessary to render a complicated filling a simple one; and then again others have learned the lesson *too well*, who continue to cut and carve, until they mutilate what they should preserve. Both classes are *extremists*, and I doubt not that success lies between the two.

In the preparation of the cavity, we here lay down a few axioms or theorems, being the result of fifteen or twenty years practice, checkered ever as they are with various degrees of success, and failure. First, never attempt to fill a tooth until every part of the cavity can be seen, either with or without the aid of a glass. Second, always secure sufficient space, either by wedging, filing, chiseling, or extracting, so that you can have a free use of your instruments within the cavity. Third, avoid filling under a thin and exposed portion of enamel, lest it crumble off and destroy your filling. Better cut it away at once rather than incur the risk of losing your filling and perhaps your reputation. Fourth, attain a regular and firm margin to all cavities so that the union between the filling and tooth shall be complete, consequently no danger of leakage.

These are but simple rules, yet they cover much of the ground in which there are snares and pitfalls to entrap the unwary feet of the careless practitioner, and if honestly followed in the preparation of the cavity, much of the difficulty of filling is obviated, as we shall have by this time, secured self-confidence, as well as the confidence of the patient, both of which are essential to success.

But there are instances of excessively sensitive dentine, and of very nervous patients, when it becomes almost impossible to accomplish what we know to be essential to success. In such cases it becomes a matter of serious import what shall be done. We must resign the organ to destruction by dismissing the patient or perform an imperfect operation, unless we resort to remedial measures.

I cannot belive there is any rule that will apply to all cases, but as a general one, I believe it best to dismiss the patient rather than perform an imperfect operation. Still we may gain some advantages by temporary fillings, trusting to the benign effects of remedies, or of nature to remove the difficulties.

We might here also add to the causes of failure, imperfect and ill adapted instruments. Some dentists, either from penuriousness, ignorance, or old fogyism, are in this respect about as far behind this age of improvement as an ancient soldier would be with his matchlock or flint and steel gun; put some of the improved instruments into his hand, and he would be almost as much astonished at the ease and rapidity of the results attained, as an Egyptian would be at the discharge of a mitralieuse. As we pass from the preparation of the cavity to introducing the gold, the observation in reference to improved instruments is especially *apropos*, for, in this department, improvements have perhaps made the greatest strides, and one who is not up with the times and is ignorant of the advantages of such points as Atkinson's and Varney's, will very likely be found an incubus on the profession, crying down perhaps dental colleges, conventions, and all advancement generally.

In the preparation and introduction of the gold, there is more opportunity for display of one's originality and individuality, consequently the operator should be less trammelled by rule, excepting that of his own making, and it may not be very far from the truth when we say that many fail because they have no settled plan of their own, and never perfect any system which they from time to time may adopt. And yet one may change his theory and his practice several times during the course of twenty years, and still be entirely consistent, for while we should remember to hold fast to that which is good, we must not forget to press forward to "a higher mark," being careful, however, that all innovations on established rules shall be made cautiously.

There are many like myself, who once used nothing but soft gold, and now very little but adhesive gold, and yet have made the transit without violence or sudden change.

I first used adhesive gold to finish off with, and gradually increased it until now I seldom use anything else. In crown cavities I introduce the gold in the form of pellets, until the cavity is one-half or two-thirds full, consolidating at this point with mallet, then add layer upon layer of open leaf foil until the entire cavity is filled, using the heavier num bers to finish the filling. My success demands this course, while others may succeed as well or better, with soft, or semi-adhesive foil, prepared in the form of cylinders, or strips. But whatever is adopted, good caution is necessary to have the material properly consolidated, so as to resist the wear and tear of mastication. To do this it necessary to pack with small points, with direct pressure on every part of the filling. In filling approximal cavities when prepared as we have previously described, we commence by introducing cylinders as large as can be carried to the bottom wall of the cavity safely, and continue this process until the cavity is half or two-thirds full, and then complete as in the case of crown fillings, care being taken that the cylinders shall be a little longer than the depth of the cavity, so that the filling will be flush on the approximal surface, which can be dressed down at pleasure. The use of adhesive foil enables the operator to overcome what I conceive to be a very common difficulty in the use of soft foil, viz: the inability to add to the surface of a filling when it was found to be not sufficiently full. But with adhesive foil it can be built up to any required height. The great enemy of adhesive foil, is *moisture*, and if not fully protected, failure is the result, but it is a failure which can be at once corrected, and does not immediately come to the dentist's ears, repeated by some kind friend after having passed the rounds of the social circle. But even while the work is being done judgement may be passed upon it with the utmost certainty. As a protection against moisture, nothing equals the rubber dam, it acts like a charm, it destroys the hydra-deaded monster (moisture) of all power to harm, and I hail it as one the most important inventions in modern dentistry, a worthy companion to the mallet and adhesive foil.

The discussions and and conflicting theories connected with the different modes of practice in operating upon teeth with exposed nerves, demonstrates the fact that we are still searching for truth. We need some *terra firma* upon which we may plant ourselves and say confidently "here we rest." We do not propose to review what has been said and written upon this subeject, but simply to give our mode of practice and the result, for what it may be worth, which from all the lights before us appears to be the best, because by this method we are the most successful and must submit to be called old fogy, and perhaps by harder names, by those who differ from us in practice. When I discover an exposed nerve, I consider first the age, constitution and temperament of my patient. If under twenty years of age and of a delicate constitution and nervous temperament, I almost despair of success except by destroying the nerve, still in very important teeth, a course of treatment to preserve the nerve alive, may be advisable, still in my practice such an effort is almost invariably attended with suppuration and loss of vitality sooner or later, and owing to this almost uniform result, I would feel unjustifiable in making the attempt, except as an experimental search after "more light,"

But with a less susceptible class of young patients, and most of those over twenty years, I regard the proper treatment of exposed nerves, with a view to preserving them alive, as not only justifiable but absolutely demanded of the dentist as the custodian of these important organs. We proceed first to apply creosote to remove inflammation and consequent pain, if the patient applies with an aching tooth, and after an interval of a day or two I excavate carefully as the soreness subsides, renewing the application of creosote or carbolic acid as may be necessary to restore the normal condition of the tooth, and to promote sloughing of the diseased portion of the nerve. Before filling, some advantage may be gained by placing a drop of collodion on the exposed nerve, and when evaporated proceed to fill the cavity with ox. chl. zinc in a soft paste, care being used to avoid pressure as far as possible. My own failures in this treatment, I attribute sometimes to hurrying the work too fast, not giving nature time to restore a healthy action, and perhaps this cause may operate with others to produce like results. Judgment must always be exercised in these cases as to the length of treatment and time for filling.

But when we chance to expose a healthy nerve in excavating, the treatment is easy and generally safe. Apply creosote for a few minutes, and fill immediately with ox. chl. zinc—when it becomes hardened all may be cut out excepting a portion over the nerve, and then filled with gold. But after all has been done, and science and art are exhausted, it is a very pertinent enquiry how many of these "perfectly successful operations" do not show dead nerves within ten years? If this perfected treatment, places the tooth in as complete a sanitary condition as before the nerve became exposed, why should this nerve be in any greater danger of dying than before it became exposed? That it is so, every practitioner can testify to his sorrow. Let us then not arrogate to ourselves, more than we deserve, but candidly admit that there are new discoveries to be made and higher attainments yet to be reached before we arrive at the perfection of nature.

That the chances of success are grerter in patients over twenty years of age, I regard as a fixed fact, but why this is so, can be more readily accounted for on the ground that certain pathological conditions are assumed about this age or soon after, which make suppuration less liable to occur. I arrive at this conclusion principally from the fact that the same course of treatment with patients under twenty almost always fails, attended with a great deal of annoyance, while my success has been most gratifying with those of more advanced age.

Taking everything together, it is questionable whether the profession has made much advancment beyond the well defined "land marks," of destroying nerves, and filling nerve cavity and crown. This is the *finale* of many a beautiful structure built over a pulsating nerve, when for a time all seemed to go "merry as a marriage bell." When I wish *certain results*, I destroy the nerve and subsequently fill.

I say *certain*, for by this course I have not had an abscess to occur, or necessity for the patient to return on account of serious trouble for several years. My practice is to apply the usual arsenious paste, allow it to remain from twenty-four to thirty-six hours; then remove, make a free opening into the pulp chamber, and apply cotton saturated with creosote, and dismiss the patient for a week unless necessity compels the work to be completed before— if so I see the patient every day, and continue treating with creosote or "phenol sodique," until the tooth is free from all soreness, and perfectly cleansed from all remains of the dead nerve. I then proceed to fill, commencing with a small piece of cotton moistened with creosote, which is forced to the very apex of the root, then commence with gold and complete the fang filling, and finish the crown filling the following day.

The object of delaying a week after the first application of creosote, is to allow time for the devitallized nerve to become partially dry and hardened, so that it can be removed whole. The points to be noticed in this process are first, remove every portion of the dead nerve. Second, remove soreness by application of creosote, "phenol," or tinct. camphor. Third, avoid doing too much at a time, allowing nature a chance to recuperate after the violent destruction of the vital part. Fourth, fill every portion perfectly. To destroy thermal influences, cover the fang filling with a layer of ox. chl. zinc, before putting in the crown filling. If every step is carefully taken, we cannot understand why it should ever give any further trouble, at least I am willing to risk my reputation on the result of such an operation, if carefully and intelligently done, rather than upon the most approved style of filling over exposed nerves, except in the most favorable cases.

In regard to finishing fillings, much time is frequently necessary to give proper shape and polish. But this becomes more a matter of taste than of real utility, if every step has been carefully taken thus far, although it must not be by any means neglected, if one would please those patients who are fastidious in matters of taste.

We do not propose to discuss in this paper, the effect of the surroundings in a dental office on success or failure, the mannerism of the operator, the necessity of cleanliness, or any other exterior influences which so much contribute to the final result, although it might be embraced within the scope of our subject. We prefer to leave these matters to be regulated by the gentlemanly instincts of the dentist, and if he has no such monitor to direct him, we shall gravely and silently conclude that he has mistaken his calling.

There remains the second portion of our definition of success to consider, viz: *Contour Filling.* To make this a success, the operator needs a quiet and sensible patient, the best adhesive foil in assorted numbers, rubber dam, an assistant to use the mallet and prepare gold as required, and a small alcohol lamp. When everything is ready, the cavity properly prepared. the rubber dam adjusted, the operation of filling commences, by first securing the base by means of grooves or pits into which the gold is packed securely, and when safely anchored, it is very easy to build up to any shape required.

By the aid of heavy foils, say No. 60 or 120, cut in small squares or strips, fillings can be built up very rapidly, and perhaps more securely than with lighter numbers. Every piece of gold should be placed over the flame of the alcohol lamp to remove any dampness which destroys its adhesiveness before it is packed. The malleting should be resorted to as often as necessary to condense perfectly, and when layer after layer is added and the filling assumes the proportions desired, the operator must feel a conscious pride at the beautiful structure which he has reared. But occasionally he may feel a tinge of trepidation lest this structure, though beautiful, may not be substantial; and I feel confident in saying that one who practices centour filling extensively, must expect some failures, for the class of teeth which require it are generally of a frail character, consequently operations upon them are liable to accidents. This being the case, to secure uniform good results, a just discriminatiion must be made between favorable and unfavorable subjects. The antagonism of the teeth must be carefully noticed. A projecting angle of the tooth may receive the whole force of the opposing tooth, and if not well supported may give way, and sometimes a sharp cusp may act as a wedge to loosen the filling. These peculiarities must be guarded against or failures will become so frequent as to discourage both patient and operator. The remedy in these cases may often be applied to the opposing tooth, in filing away a cusp or cutting an edge, so as to restore a perfect and natural antagonism.

We have now gone over some of the points which have suggested themselves to us connected with this subject, and have endeavored to contribute our mite of experience, and perhaps truth to the general fund. We cannot close without first remarking, that complete success rests much upon the fitness of the individual for his calling, first, by having the necessary talent, second, the proper education, and lastly, but not least, that moral courage which arises from a conscious honesty, and which enables him to look up and go forward with aspirations after higher attainments, and a determination to succeed. To all such I would say, be encouraged, go on seeking for the truth, and success will finally be your reward.

ARTICLE IV.

A Naughty Case.

BY DR. S. J. COBB.

Now and then we find one who has courage and manliness enough to speak of his failures. We are very much obliged to Prof. Cutler, of New Orleans, for his report of an ugly case of hemorrhage. It is said that truth is mighty and will prevail. The doctor must have had an eye single to the truthfulness of the saying when he made his report. I have asked myself frequently since reading the account of his "unpardonable blunder" as he styles it, how many of us would acknowledge it as manfully as he has done? It is nothing more than common for us to speak of our success, but very uncommon to make known our miserable failures. If the truth has to prevail, why not let it do so at once? We are of the opinion, the sooner the better.

While we have made many failures, and unpardonable at that, we are glad to say we have thus far been saved from pulling two teeth instead of one. It may be that we will do it and even worse, when we get to using nitrous oxide gas; but as we prefer our own, we think it will be sometime before such a thing occurs. Now doctor, that you have found your error, we would advise you to put your foot down and stand upon it. You say you believe gas to be a great humbug, one of the greatest evils as far as dentistry is concerned, and that multiplied thousands of teeth are annually sacrificed by its use that might be saved. If gas and other anæsthetics are not only useless, but a curse to our profession, why not abandon them?

We are glad to hear some of our leading spirits speak out against these things, but we are sorry to say, thus far, it remains for their faith to be proven by their works. We have long since satisfied ourself that there was too much risk in the administration of any general anæsthetics, to encourage its use in our profession. If as a consequence the use of these things for the purpose of extracting teeth is not humbuggery, it is the next thing to it, and as such we do not propose to do it; we will say once and for always, we never intend to convert our office into a laughing gas establishment. We did not in times past think these laughing gas dentists the best in the world, and we are glad to say time has not changed our opinion, notwithstanding some of our first-class men have reluctantly taken hold of it, and occasionally use it, to the injury of their patrons, not only by pulling out the wrong tooth once in awhile, but crazing their minds, and sometimes sending them to their long homes. Again, you say gas and cheap rubber plates are the order of the day, and no one can stop the tide. Let us see about that; suppose you and every body else that thinks as you do, that gas is a humbug, or at least unnecessary in our profession, should exert their manhood in trying to stop the evil, as you did in reporting your ugly failure; don't you suppose we would finally be able to revoke or countermand the order, and stop the tide? If you don't we do, and have made up our minds to make the effort. Is it not our duty to do truth, regardless of popular opinion? We must remember that the masses are not great investigators, as such we cannot see how truth is to assert itself, except the few who are able to find it out, stick to it. Let us have truth, and it will give us what Mr. Grant used to call for, "peace."

ARTICLE V.

Alabama Dental Association.

BY DR. E. G. WHEELER.

The third annual meeting of this Association, was held in Mobile, August 16th, 1871, the first Vice President, Wm. Deason in the chair. The roll being called the following members answerad to their names:

Drs. Wm. Deason, J. H. Keyes, J. G. McAuley, A. H. Walker, and Robert A. Savage.

On motion the reading of the Constitution and By-Laws was dispensed with.

The minutes of the previous meeting were read and approved.

On motion the chair appointed Drs. McAuley, Keyes, and Walker, a committee on membership.

The election of members being next in order, the applications of Drs. T. H. Shaw, E. G. Wheeler, and John C. Storey were read, and being favorably reported on, they were elected members of the Association.

An adjournment was then had till 4 P. M., and upon reassembling, the subject of "Dental Education" was discussed for several hours.

Adjourned to meet Thursday morning at 10 o'clock.

The Association was called to order at 10 o'clock A. M. J. H. Keyes, second Vice President in the chair.

The minutes of the previous meeting were read and approved.

The subject of "Filling Teeth" was taken up and discussed for some time. An interesting paper was read on this subject by Dr. Wheeler and elicited much attention; a copy of which was requested for publication.

On motion of Dr. McAuley, the chair appointed Drs. Shaw, Wheeler, and Storey, a committee to draft suitable resolutions in memory of Dr. J. F. Knight of Marion, deceased.

The chair appointed Drs. Shaw, Wheeler, and Savage to procure certificates of membership.

The Association then adjourned till 4 P. M.

The Association was called to order at 4 P. M., the first Vice President, Wm. Deason, in the chair.

The committee appointed to draft resolutions in memory of Dr. J. F. Knight, presented the following:

Whereas, It has pleased Almighty God to remove from our midst, one of our members, Dr. J. F. Knight, of Marion, Alabama, and

Whereas, It becomes us to pay a worthy tribute of respect to one who has so long been identified with the profession, be it therefore

Resolved, That in the death of Dr. J. F. Knight, we recognize the inscrutable hand of an all-wise Providence, and that it is with sorrow we mourn his loss, yet we bow in humble submission to the decree that has deprived us of one of our most efficient and promising members. To a gifted mind were added the accomplishments of a long and systematic course of study, and the highest interest of the gentleman were sweetly blended with the graces of the christian. Such rare combinations eminently fitted him for his professional duties, as well as to become the devoted husband, the affectionate brother, and sympathizing friend, and we fervently trust that our loss has been his eternal gain.

Resolved, That a copy of these resolutions be sent to his family, and that they be spread upon the minutes of the Association.

The election of officers being next in order, the following were elected to serve for the ensuing year:

President—J. H. Keyes of Montgomery.

1st Vice President—J. C. Storey, of Eutaw.

2d Vice President—W. D. Dunlap, of Selma.

Recording Secretary and Treasurer—Robert A. Savage, of Mobile.

Delegate to Southern Dental Association— J. G. McAuley, of Selma.

Delegates to the American Dental Association—Samuel Rambo, of Montgomery; Wm. Deason, of Mobile; W. D. Dunlap, of Selma.

Executive Committee.—J. G. McAuley, of Selma; T. H. Shaw, of Mobile; W. J. Reese, of Montgomery.

Mongtomery was selected as the next place of meeting. The application for membership of Dr. Geo. H. Taylor, being presented, and favorably reported on, he was elected a member of the Association. No other business being before the Association, it adjourned to meet in Montgomery on the third Wednesday in August next.

ARTICLE VI.

Eastern Ohio Dental Association.

BY DR. D. B. MCLAIN.

The second semi-annual meeting of the Eastern Ohio Dental Association, will be held at Alliance, in Masonic Hall, commencing at 10 o'clock A. M., on Tuesday, February 27th, 1872. Session will continue one day, to which all members of the profession are cordially invited. Interesting clinics will be given by competent operators.

Subjects for Discussion.—Anæsthesia. The Gums and their Diseases, and when is Extraction Indicated.

Essayists.—J. M. Porter, of Massillon; J. H. Siddall, of Canton.

Major Kerr, of the Arlington House, will entertain members and visitors, at very reasonable rates during the convention.

J. C. Whinery, *President.*

D. B. McLain, *Secretary.*

SELECTED ARTICLES.

ARTICLE VII.

Structure of the Red Blood-Corpuscles.

Nothing can better illustrate the difficulties that beset the determination of the minute points of microscopical inquiry than the discrepancy of opinion that exists amongst the best observers in regard to the structure of the red blood-corpuscle. For many years it was held to be indisputably a cell, and to consist of a definite cell-wall enclosing cell-contents. For sometime past, however, a change of opinion has been visible; and in most of our text-books of physiology, if it be not expressly stated, it is at least hinted at as probable, that the corpuscles are homogeneous semi-solid bodies, the surface of which may perhaps be a little more condensed than the interior. The remarkable experiments of Mr. Roberts, of Manchester, on the action of the anilin and tannin, though at first apparently in favor of the cell theory, were yet subsequently considered to be explicable on the theory of homogeneity, by supposing that these agents hardened the surface, and so led to the phenomena observed. The peculiarity and persistence of the form of the red corpuscles, and their behavior on the application of pressure, are certainly in favor of this latter view. A paper, however, by Dr. Joseph Richardson, of Philadelphia, which we have just received, speaks strongly in favor of the old cellular view. This gentleman's experiments were conducted upon the Menobranchus, which he obtained from the Cayuga lake in Western New York, the blood corpuscles of which animal are, as is well known, gigantic, being about 216 times larger than those of man. In endeavoring to discover some indications of the presence of a cell-wall, he found quite unexpectedly that the colored portion possesses the remarkable property of crystalising with great readiness *within* its envelope. Dr. Richardson states that, on slightly concentrating the blood of this animal, one or two crystals form in almost every corpuscle; and the effect of their formation and elongation is precisely what we might expect to be produced by bodies of similar shape contained within an ordinary bladder partially filled with fluid, the ends of the corpuscle being in some instances thrust out till the length becomes a third greater and its breadth correspondingly diminished, the nucleus being closely compressed against the prism. In other instances, where the corpuscles lie across, the whole corpuscle assumes a lozenge or rectangular form, in which state it may be mounted dry. Dr. Richardson further argues—though this is less satisfactory evidence—that on briskly stirring, freshly drawn blood with several times its volume of water, the coloring matter can be withdrawn, leaving the cell membrane intact. And finally, he has succeded in dividing a corpuscle under the microscope with a sharp needle; the contents escaped, while the cell-wall shrank up around the nucleus into a perfectly hyaline particle. From these researches he concludes that the older theory, which asserts that the red corpuscle of the vertebrates generally are vesicles, each composed of a delicate, colorless, inelastic, porous, and perfectly flexible cell-wall, enclosing a colored fluid, which is sometimes crystallizable and is freely miscible with water, explains the physical phenomena presented by the red globule far more satisfactorily than any other hypothesis that has hitherto been advanced.

Without disputing the accuracy of the observations here recorded in reference to the corpuscles of the Amphibia we would just remark that it by no means follows that the structure of the corpuscles of the higher animals is at all similar; and we are still disposed to hold the opinion of Dr. Gulliver, that, in mammals at least, the red corpuscles are nuclei, and as such are probably homogeneous in composition, and destitute at any rate of a proper cell-wall.—*London Lancet.*

ARTICLE VIII.

The Perkins-Hyatt or Celluloid Base.

BY W. H. EAMES, D. D. S.

In the April number of the *Journal*, of the current year, we called the attention of our readers to this new base, and published, as an item of interest, the circular issued by the patentees, adding a word of caution against a too hasty adoption of what was then an untried experiment. Sufficient time has now elapsed to prove, we think, the utter worthlessness of this material as a base for artificial teeth, and agreeable to a promise made when we took up the editorial quill, we publish the following list of experimental cases with this base, with the results, as our own experience, and upon which, in part, we base our opinions of its merits.

Case No. 1. Mrs. P., full upper set gum teeth; returned in three weeks, so badly shrunk that the heels of the plate would not pass over the plaster model by one-eighth of an inch. The bicuspid blocks, on both sides, drawn inwards, so that the upper edge of the gum was entirely out of the socket formed by the rim of the plate above the blocks. Color of plate, pink. Put up in boiling oil.

Case No. 2. Mrs. H., full upper plate plane teeth; returned in two weeks, shrunk so that the plate would not touch centre of the palate by one-fourth of an inch. Softened the plate and readapted it to the plaster model. Returned in one week, worse than ever. Color of plate, dark brown; boiled in oil. Plate inserted soon after extracting the natural teeth.

No. 3. Mrs. H., full upper temporary set; returned in two weeks, so much out of shape, that it could not possibly be worn. Color of plate pink; boiled in oil.

No. 4. Mrs. R., full upper and lower set; returned in four weeks, shrunk so that it was impossible to wear them· The heels of the under plate one-fourth of an inch nearer each other than when first made.

No. 5. Mrs. E., full set of upper and lower gum teeth; returned in three months, all drawn out of shape; the under teeth drawn inwards, throwing the edges of the gum out of the rim, and the plates so curled up that the posterior molars would not articulate by at least one-fourth of an inch. The worst case of shrinkage and twisting in the lot.

No. 6. Mrs. R., full set upper and lower. Put up in June, is still worn, but a very poor fit. Color, light pink; boiled in oil.

No. 7. Miss L., full upper and lower. Put up in June; still worn; plate without any coloring material. Translucent.

No. 8. Miss I., full set upper; returned in three weeks. Made a new plate of the improved material; returned in six weeks, entirely out of shape.

No. 9 Miss K., upper set; put up in May; returned in six weeks. Made a new plate; second plate returned in eight weeks, worthless.

No. 10. Mrs. E., full upper and lower gum teeth; made in June; returned in three months; blocks out of place and the plate all out of shape.

No. 11. Miss C., partial plate; returned in three weeks, worthless.

No. 12. Miss I., partial; returned in four weeks, worthless.

No. 13. Mr. H., full set; made in June; returned in four weeks; second plate of the improved material returned in six weeks, worthless.

No. 14. Mrs. B., full set temporary; returned in four weeks, worthless.

No. 15. Mrs. B., full lower set temporary; made in May. Still worn, but badly out of shape.

Ten other cases, returned as worthless.

We think comment on the above record unnecessary; it speaks for itself. Of all the cheap materials which have been palmed off upon the profession, as bases for artificial teeth, this is undoubtedly the poorest.

We have tried the different qualities of this material, and find but little difference in the result. The plates having the least camphor combined with them being undoubtedly the best; but they all contain too much of this element. Unless the manufacturers can overcome the shrinkage and warping of this material, it can be of but litile use.

In the last number of the *Dental Cosmos* may be seen a full page advertisement, recommending very highly the celluloid base, and stating emphatically that all objections urged against it have been overcome. We have received plates, since this advertisement appeared, that do not differ materially from those manufactured three or four months since.

'Tis said, there are tricks in all trades, and this trick of puffing, by means of circulars, purporting to be issued by disinterested parties—men well known to the profession—and solely for the benefit of brother dentists, who are supposed to be anxious inquirers after truth, and by laudatory puffs and flaming advertisements, in our dental journals, is one with which our profession is largely cursed at the present day, and one which has cost many a poor dentist, living remote from our large cities, dollars for which he has received no benefit. "We know how it is ourself."—*Missouri Dental Journal.*

ARTICLE IX.

A Correct Method for Articulating Artificial Teeth in the Mouth.

BY A. B. ABELL, JR., D. D. S., OF PHILADELPHIA.

Having occasionally had cases in which I found it necessary to articulate teeth in the mouth, and having consumed much valuable time in guessing what point neeeded grinding, I was induced to devise some way by which I could tell promptly what point or points prevented the teeth from coming properly together. Having found the following method to work satisfactorily to myself, I give it to the readers of the *Times:*

Warm a piece of wax, and place it on the cutting edges and grinding surfaces of all the artificial teeth. Then place the case in the mouth, and instruct your patient to close the jaw, until the teeth of the upper and lower jaws antagonize, and press the wax against the face of the teeth while they are in this position. Remove the case from the mouth, and should the wax have become misplaced, carefully replace in position on the teeth. Now secure an articulating model, using an articulator having the movement of the natural jaw. The object in using the wax, it will be seen, is to get an impression of the antagonizing teeth, also the position of the teeth in the mouth when brought together. After the plaster has set, part the case and remove the wax. Then color with vermillion, or other coloring material, the cutting edges and grinding surfaces of the teeth that antagonize with those teeth from which you wish to grind. Bring the articulator together, and the marks made by the coloring material will show you at once exactly what point requires grinding off, and having the teeth in position as they are in the mouth, you will be enabled to see when you have brought them together sufficiently.—*Dental Times.*

MONTHLY SUMMARY.

Epulis.—Maxie T., aged 7 years, has a tumor on the gum, which has existed for about three months. Last week he had a tooth extracted, which seemed to be intimately connected with the mass. This tumor is of a fibroid character, and undoubtedly commenced its growth in the socket of the tooth, which it loosened and pushed before it. The tumor was defined as an epulis, and is unusual at this period of life, the lecturer stating that he had never met with a growth of this kind at so early an age. Sometimes such a structure as this takes on epithelial action; at present it is the seat of a discharge of a disagreeable odor. A tumor of this kind may acquire sufficient bulk to interfere with mastication, deglutition, etc. It is liable to return and the only remedy for its relief is excision of the piece of bone to which it is attached.

Chloroform was administered, and on taking firm hold of the growth it peeled off from the jaw like a piece of old moss from the bark of a tree. Two teeth that seemed implicated were drawn, and the jaw bone, being soft, was thoroughly chiselled out, instead of a section being removed by means of the saw.

The especial care that must be taken with patients while under the influence of an anæsthetic during operations about the mouth was well shown in this case. The parts were very vascular, and repeatedly the patient had to be turned on his side and the head depressed, in order to evacuate the blood, which constantly ran into his windpipe and threatened to strangle him.

In connection with this case, Prof. Gross exhibited to the class two pathological specimens, removed in private practice during the morning. The first and larger one was a growth taken from the right fore-arm of an old lady seventy-two years of age. It had the appearance of a mushroom, and the skin on which it rested was greatly congested. It discharged a thin and offensive sanious fluid, but was the seat of no positive pain, if a slight twinge now and then might be excepted. It rested on a broad base, but, on removal, the subcutaneous fatty and cellular tissues, to all appearances, were found to be perfectly healthy.

Section of it resembled section of the pancreas or mammary gland of a young subject. It occasionally bled, and was undoubtedly an epithelial outgrowth of the skin.

The second specimen resembled a large wart, and was taken from the lower lip of a man aged eighty years. Its base was greatly indurated, and it was defined as an epithelial cancer.—*Surgical Clinic of Prof. Gross.—Medical Times.*

A Simple and Excellent Cleansing Agent.—Ammonia, or as it is more generally called, spirits of hartshorn, is a powerful alkali, and dissolves grease and dirt with great ease. It has lately been recommended very highly for many domestic purposes. For washing paint, put a teaspoonful in a quart of moderately hot water, dip in a flannel cloth, and with this simply wipe off the woodwork; no scrubbing will be necessary. For taking grease spots from any fabric, use the ammonia nearly pure, then lay white blotting paper over the spot, and iron it lightly. In washing laces, put about twelve drops in a pint of warm suds. To clean silver, mix two teaspoonfuls of ammonia in a quart of hot soap suds. Put in your silverware and wash it, using an old nail-brush or tooth-brush for the purpose. For cleaning hair-brushes, etc., simply shake the brushes up and down in a mixture of one teaspoonful of ammonia to one pint of hot water; when they are cleansed, rinse them in cold water, and stand them in the wind or in a hot place to dry. For washing finger marks from looking glasses or windows, put a few drops of ammonia on a moist rag, and make work of it. If you wish your house plants to flourish, put a few drops of the spirits in every pint of water used in watering. A teaspoonful in a basin of cold water will add much to the refreshing effect of a bath. Nothing is better than ammonia water for cleansing the hair. In every case rinse off the ammonia with clear water. To which we would only add, that for removing grease spots, a mixture of equal parts of ammonia and alcohol is better than alcohol alone; and, for taking out the red stains produced by strong acids in blue and black clothes, there is nothing better than ammonia.—*Technologist.—Richmond and Louisville Med. Journal.*

Infection—Ready Mode of Preventing.—There is perhaps no plan of preventing infection so ready as the production of sulphurous acid by the combustion of sulphur. To disinfect a bed, whilst the patient is temporarily removed from it, pass a copper warming-pan into the bed, containing a few live embers and a little sulphur. The pan should be moved about during the ignition of the sulphur. By burning sulphur in an open vessel, closets, carriages, passages, and vacated chambers of the sick may be easily disinfected. Clothing may be lightly sponged over or sprinkled with water containing a little well mingled sulphur, and then ironed with a flat-iron heated to a temperature which will cause ventilation of the sulphur without burning the linen.—MR. J. SARTIN.—*Braithwaite.*

Earache in Children.—Dr. Anstie, after detailing (*The Practitioner*) the particulars of an attack of auricular herpes zoster in his own person, says that the idea has occurred to him that a large proportion of cases of earache, which are generally set down as examples of suppurative inflammation of the meatus auditorius, are in reality nothing but neuralgic herpes, depending on an affection of the auriculo temporal nerve. In the earache to which children are liable, the pain often comes on in the first instance violently; the patient cries out with the severity of the suffering, but then there are remissions, amounting often to complete intermissions. Moreover, it is but rarely that a well defined discharge of pus is observed, even when relief to the pain has been somewhat suddenly obtained, as is not unfrequently the case. On the contrary, there is frequently found a shedding of small scales, either dry or moistened with a little bloody sanies, from the lining of the meatus, a few days after the cessation of the pain—in fact, what looks like the dead epidermis of vesicles that have faded. The whole course of events seems, he says, to correspond much more nearly with that of auricular neuralgic herpes than with that of common abscess of the lining membrane of the meatus. Herpes zoster occurring in children on other parts of the body is not attended by much neuralgic pain, and the occurrence of severe pain in the auricular form of the disease is difficult to explain. Dr. Anstie suggests that it may be due to the fact that the superior and inferier maxillary nerves are the first of all sensory nerves in the body to exhibit any tendency to pain of a grade approaching to the severity of true neuralgia ; and the reason of this is, possibly the depressing and exhausting influence exerted on them by the growth of the teeth.—*Medical Times.*

Vegetable Carbolic Acid.—We read that a plant called the andromeda leschenanltil, growing in the Neilgherry hills, in India, has been found to yield carbolic acid. Mr. Broughton, the Government medical officer for the district, reports that it is far superior in purity to the ordinary product of coal tar, being less deliquescent and free from any admixture of noxious concomitants. As its cost is far above that of themineral product, and as the latter can be chemically purified the discovery has no economical or commercial value; but it is interesting as a botanical and chemical fact.—*Druggist Circular.*

Fatal Salivation from Bichloride of Mercury.—In a case which is fully reported in the *Lancet* for September 16th, Dr. Meeres applied with a small camel's hair brush a strong alcoholic solution of corrosive sublimate—eighty grains to the ounce—to the head of a child affected with tinea tonsurans. The application gave rise to no pain at the time, but during the ride home, in an open dog-cart, the child suffered severely. Shortly afterwards vomiting and purging came on. Salivation, accompanied by much swelling of the parotid and submaxillary glands, was first observed on the evening of the day after the application, and continued until death took place, apparently from prostration, on the morning of the fifth day.

The verdict of the coroner's jury was "that death was caused by poison from the application of a very strong preparation of bichloride of mercury made to the head and neck by Dr. Meeres," and that "Dr. Meeres is very greatly to be blamed for having made the application."

The lotion applied was from a formula of Dr. Tilbury Fox, and has been used by him in a precisely similar manner in the same disease in very many instances, and this case is the first in which any untoward symptoms have been produced by it.—*Medical Times.*

A New Way of Testing Petroleum.—At the session of the American Science Association in Indianapolis, Prof. Vander Weyde described his new test for the adulteration of kerosene, which seems to be of immediate practical value. This is founded on the fact that all vapors given off by petroleum are combustible, and that if any kerosene or other preparation from petroleum gives off a vapor at the accepted standard temperature of 110 degrees, and it is not necessary to try whether it will burn, but sufficient to collect it in a proper vessel, by which we gain the additional advantage that we may measure the quantity of the vapor, while none of it can be lost by air currents incidentally passing over the surface of the liquid. He takes, therefore, a glass tube, closed at one end and open at the other, and fills it with the petroleum to be tested, then, closing the open end with the finger, inverts it in a vessel with water warmed to 110 degrees by mixing hot and cold water, and keeping it at that temperature by occasionally adding hot water. If now any vapor be apparent, it will collect in the closed upper part of the tube, displacing the oil downward. The amount of this gas will be a comparative test of the different qualities of oil, and for this purpose the tube may be graduated in order to measure the amount of volatile liquid present in the same. This method is not subject to the discrepancies found in the usual way of testing, in which an impure and dangerous quality of oil may be made to appear better than it is by slow and gradual heating, and which if performed in a light draft of air will have the vapors carried off as soon as developed, so that it becomes impossible to ignite them. This new method gives freedom from the danger of using fire, more accuracy, a trustworthy means of measurement, and no chance for deception.—*Medical and Surgical Reporter.*

Poisoned Gloves.—An English medical journal publishes a warning against the wearing of green kid gloves. It has been observed in several cases that the hands of those wearing gloves of this color soon become covered with an eruption which physicians find hard to cure, as the poison seems to enter the system. Upon analysis, it has been found that the green used for dyeing the kid contains arsenic. Though not all the green kid gloves in the market are so dyed, it is nevertheless safer to wear others of a less bright and less dangerous color.—*Druggists' Circular.*

Cotton to Stop Bleeding—A hæmostatic can be prepared, according to Dr. Ehrle, by first digesting the raw material in caustic soda, and afterward saturating with chloride of iron. It has been thoroughly tried in the hospitals of Europe during the last six months, and is everywhere highly commended. The application of it is in the same way as lint, and as it absorbs water, close bottles or packages must be employed for preserving it. It would be a good article to have on hand in every household. We mentioned some time ago a modification of this process in the form of gun cotton, to be used as a disinfectant, by substituting permanganate of potash for the chloride of iron. As long as gun cotton is kept wet there is no danger of its taking fire, and the fiber in this condition is not liable to disintegrate by the action of the agents poured upon or through it. Gun cotton is one of the best agents we have for retaining liquids for any purpose.—*London Ph. Journal.*

Death from Methylene—A recent number of the *Oxford Chronicle* a fatal case in the Radcliffe Infirmary, Oxford. The patient, a married woman, agged 44, was about to undergo an operation for cancer of the breast. Bichloride of methylene was administered by the dispenser of the Infirmary, in the presence of the house-surgeon and one of the surgeons, on a flannel bag. After two or three convulsive gasps, the patient expired. The quantity administered was small. Artificial respiration was practiced, and other means of restoration, but without success.—*Brittish Medical Journal.*

Uses of Carbolic Acid.—In pasting wall papers, posters, etc., especially where successive layers are put on, there arises a most disagreeable effluvia, which is particularly noticeable in damp weather. The cause of this is the decomposition of the paste. In close rooms it is very unwholesome, and often the cause of disease. In large manufactories, where large quantities of paste is used, it often becomes sour and offensive. Glue, also, has often a very disagreeable odor. If, when making paste or glue, a small quantity of carbolic acid is added, it will keep sweet and free from offensive smells. A few drops added to mucillage or ink prevents mold. In whitewashing the cellar and dairy, if an ounce of carbolic acid is added to each gallon of wash, it will prevent mold and prevent the disagreeable taints often perceived in meats and milk from damp apartments.

Another great advantage in the use of carbolic acid in paste for wall paper, and in whitewash, is that it will drive away cockroaches and other insect pests. The cheapest and best form of carbolic acid is crystal, which dissolves in water or liquifies at an excess of temperature.—*Jour. Ap. Chemistry.*

EDITORIAL DEPARTMENT.

The Cumming's Patent.—The Dentists throughout the country are forming organizations to contest the validity of the Cumming's patent on Vulcanite Base, and an appeal from the decision of the U. S. District Court of New York, (reaffirming the validity of this patent previously sustained in the Wetherbee case) brought by Benoni E. Gardiner in the Supreme Court of the U. S. will be heard during the present month (February,) and the matter decided.

So confident are the leading members of the profession throughout the country that the Cumming's patent cannot be sustained after June next, at which time the Goodyear patent expires, that they are determined to use every effort to obtain an impartial hearing.

To do this successfully will require united action, and they therefore invite all practitioners of dentistry to co-operate.

The proprietors of the Cumming's patent, represented by Josiah Bacon, will spare no amount of money and energy in the attempt to sustain their claim, and it is therefore necessary for every dentist who regards their claims as unjust, to contribute as much as he is able in assisting those who are endeavoring to remove this great burden from the profession.

The following from Dr. S. S. White in the *Cosmos*, will enlighten those who are uninformed on this subject:

"Desiring to give a reply that will not mislead those asking for information and advice, I applied to one who, by reason of his knowledge of the patents and of the proceedings under them, is quite competent to give a statement of the existing condition of the case, and an opinion as to the course of action open to dentists in the present dilemma. The following is his statement:

"The Nelson Goodyear patent for hard rubber will expire in May, 1872. It can be extended for a further term by special act of Congress, but there is no probability that such legislation can be procured for the continuance of a patent owned by purchasing speculators—and which has paid so largely. It is safe to conclude that that will be the end of it.

The Cumming's patent, which claims the present mode of making hard rubber artificial dentures, was granted June 7, 1864, for the term of seventeen years.

The specification and claims of the amended and reissued Cumming's patent are such that, while it stands as a valid patent, a dentist who makes hard rubber or vulcanite work cannot evade it. He must either conceal that he does it, or procure a license from its owners, or accept the issue and fight them in the U. S. Courts.

Heretofore the suits brought against dentists infringing this patent have resulted in its favor. Many persons attribute these results to anything but the soundness and goodness of the patent. We hear of partiality of the judges, collusive consent of the defendants, etc. Yet whatever may be the truth of these rumors, the fact is becoming apparent that by several judgments in its favor, this Cumming's patent will acquire such a standing as will give its owners great facility in the courts for taking injunctions against infringers.

It is the announced rule of the Boston Dental Vulcanite Company to license dentists under both the Goodyear and Cumming's patents, and in no other way.

They do not grant licenses for less than one year.

If therefore any dentist makes vulcanite during the year 1872, he must conceal it perfectly, or expect to pay Josiah Bacon's Company, the price of a license etc., for the year.

If he vulcanizes a single case he will be liable, if it be previous to May 6th, on both patents, and after that date on the Cumming's patent only.

To resist the Goodyear patent at this late day would be folly

To resist the Cumming's patent is wise if it be well done. Whoever does it must calculate to do it alone, and at his own expense, or know for himself the aid which others will give him.

There is a good deal of talk and inquiry at this time, but there does not exist any organized association for general defense or to aid individual resistants.

It is possible to break the Cumming's patent. It is an unsound and defective patent. To break it is quite as possible for an individual as for an association, but to do it will require the knowledge, the pluck, and the money to carry it through.

The individual dentist who knows he has not got these of himself or is not sure to get them from others, had better take a license—when compelled to do so—or let vulcanite alone.

On the whole, this last is the very best way. Pass the word around, *let Vulcanite alone.* Do not make a bit of it this year; be ready to show and prove that you have not; use any other material known to the profession as being suitable; be firm in this course for a short time.

Cut off the resources of the Bacon party, give them no hitch for a claim or a suit against you; carry out this abstinence until June next, when they will be able to attack with the Cumming's patent only. Organize in the meantime a strong association, retain the counsel which defended the Wetherbee case; add to them Hon. Samuel Fisher, late patent commmissioner, and any other eminent counsel demanded by local interests to inspire full confidence in the effort and protect individuals from malicious prosecution; make up a full, perfect case, and break up this swindle."

Cobweb in Hemorrhage from Extracting Teeth.—Dr. Geo. S. Staples, of Corinth, Miss., writes as follows:

Editor *American Journal of Dental Science.* Your ever welcome Journal has just been received, and in its articles, I find one from Dr. Cutler on "Hemorrhage from Extraction." Some two or three years since I noticed—in same Journal—cobwebs recommended for arresting hemorrhage.

Since that time I have had occasion to use it three times and with the happiest results.

I will give you a brief account of the most obstinate case, if you think it worth the space you can publish it.

Mrs. H., aged about thirty-five years, called on me for the extraction of the left superior molar tooth,—this was about noon on Friday.

She experienced no trouble until about 3 o'clock on Sunday morning when the hemorrhage commenced. About 11 o'clock I was sent for in haste. I at once decided to try my experiment again. I found her spitting blood by the mouthful and considerably alarmed. I simply inserted a small pledget of the cobweb into each orifice from which the fangs of the tooth came, and in less than a minute the bleeding had ceased entirely.

I had intended relating my experience before so that others might try it, but up to the present time have neglected it."

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ARTICLE I.

Cause of the Degeneracy of Teeth, Especially Among Children.

BY S. P. CUTLER, M.D., D.D.S.

Read before the California State Dental Association.

In attempting to give a satisfactory and rational solution of this question, I find the task a difficult one; a subject embracing both cause and effect, with limited data to base conclusions upon, notwithstanding the facts present themselves duly broad-cast throughout the country, more especially the Southern country, where my labors have been mostly confined.

In the first place, my observations lead me to the fact than the Americans have poorer teeth than any other people on the globe, and the Southern people have poorer teeth that the Northern, as a general rule. The people in large cities and towns have poorer teeth than in the rural districts, and among the more wealthy and refined, still poorer teeth than the poor laboring classes as a rule, excepting cooks and waiters in such families.

Mode of living, habits and climate, all exert modifying influences on human organizations, which are more strikingly manifest in the dental than in any other hard tissues of the body, these organs being more amenable to local influences than any other, at least more tangible, more especially in the young.

Want of cleanliness of the dental structures comes in for a share of our attention, and though only of secondary importance, should not be overlooked.

Let me in the first place investigate the habits and mode of living of the people of our own country, and of the Southern and Northern in contrast, then the climates.

In the first place, what constitutes a well developed and sound constitution in the young of any country? It is proper food and proper physical development or general hygiene.

I will commence with our fashionable home life, and then our fashionable systems of education. In the large towns and cities we find very little natural life, all being artificial that can be made so; night substituted for day, the time that nature needs rest and slumber for the purposes of nutrition and normal repair of wasted tissues; night being the time most suitable for all this. In fashionable life, children are suffered to keep late hours, retire late and get up late in the morning. Here is the first violation of law which has its penalties.

Very little physical exercice is taken, the most important hygiene for bone and muscle development, as well as all other anatomical and physiological perfectibility.

Unless muscular exercise is fully taken in some form or other, the bones cannot be well developed; they will lack that density and resistance essential to physical endurance.

The muscles which are all more or less attached to the bones, confer great power on the bones as *levers*, to bring about the various forms of locomotion. Where there is much powerful muscular exercise during development, unless overdone, there will be a corresponding density and development of muscles, also of bones. The teeth even partake of the same influence of general osseous and muscular development.

Now how do the facts stand? In our fashionable society, in our cities, there are no boys or girls to be seen, they are all Masters and Misses, and young gentlemen and ladies, early in their teens, making and receiving fashionable calls with as much formal state and stiffness as though they were so many machines wound up for the occasions, going through certain prescribed conventional formalities; no juvenile exuberance and hilarity of spirits and flow of youthful impulses. All such would be considered decidedly vulgar and boorish by the young dignitaries of fashionable society.

This was not formerly so much the case, and law was not violated to the same extent as now, and people had better teeth then than now, had better physical forms, better constitutions, and lived longer. In consequence of physical modification in concert with other modifying influences, diseases and their treatment have undergone distinctive modifications.

Now-a-days the mental development is only studied, and that is pushed to the utmost capacity, at the total neglect of physical development. Boys and girls, when they get together at this day do not go out in the yard and romp and play, and scream like so many wild creatures, as they did forty years ago, in this country at least. I cannot speak of the old world from personal knowledge. There is probably not so much difference there as in this country, neither is there the same amount of degeneration in the dental development there as here.

It was a rare thing to see bad teeth forty years ago, and dentists were few and far between, as they were not in demand and no great necessity existed for their services. Now the rule is bad teeth; then bad teeth was an exception. Children then were not sick so much as now, and did not need the services of a doctor as much as now, as the parents had confidence in the *vis medicatrix naturæ* of their children; now more reliance is placed in medicine than formerly, and less confidence in the constitutions of their children to throw off disease, and truly so too.

Let us first examine the little delicate hands and feet of young ladies and gentlemen of fashionable life. The fingers are white, soft, delicate and tender, and may be bent in any direction, as though they had no bones in them, nothing but cartillage, which is the case to a great extent, the bones not being fully developed and hard as nature intended them to be, in order for them to earn their bread by the sweat of their brows, work being decidedly vulgar and not fashionable now-a-days as formerly.

The bones are not well developed for want of proper physical exercise, which not only exerts a direct hygienic influence on bone development, but on every tissue and function of the entire person, even mental.

Without proper physical exercise, digestion is imperfect, and in consequence every function is impaired, the secretions of the mouth becoming, as a general thing, acid in character, which causes early destruction of the imperfectly developed dentures, the teeth decaying frequently before fairly erupted.

Let us examine into the food of children at the present day. Instead of the good, wholesome, substantial food of former times, the most refined flour is used, and bolted meal, all kinds of tubers and fruits must be peeled clean, so as not to leave a trace of the mineral element on them. The dishes must be highly seasoned, and elaborate in numbers, appetizing dishes must be brought into requisition, in order to tempt the incapacitated stomach to take on what it cannot dispose of in a healthy manner. In this way the enfeebled stomachs are overtasked, in consequence, half digested food is conveyed into the bowels, frequently ending in bowel complaints and other disorders; in consequence doctors stuff must be taken to do what nature should do.

This poorly assimilated food, has to build and repair the tissues, which necessarily does the work imperfectly, the hard tissues being the greatest sufferers of all.

An acid condition of the stomach most frequently accompanics this state of things, which attacks and rapidly destroy the new bone and imperfectly developed teeth.

The constant use of sweet cakes and candies among the better classes of children, especially where cleanliness is not observed, is another local cause of early decay, and in many cases of constitutional disturbance, unfavorable to osseous development.

Any cause greatly disturbing healthy nutrition in the young, is markedly felt in the bones and teeth, which, so far as the bones themselves are concerned, may eventually become perfected by change of habits, which would possibly come too late to save the teeth, as they go off so rapidly that time is not given. The teeth themselves may and do undergo systemic changes for the better in many cases, by great care and vigilance.

Late suppers and tea, as so-called, is another evil that ought to be remedied. Food taken too hot, and also too hastily, is another violation of law, which also has its penalties, without any appeal or habeas corpus.

The eternal washing and bathing of little children, which is so extensively practiced by the wealthy, only enfeebles the young constitution; the dirtiest children as a rule, being the healthiest, other things being equal. Healthy children have healthy and clean mouths whether they observe much care or not, the impress on dental development *in utero*.

Let us suppose an expectant mother to have been raised as above mentioned, in the lap of ease and luxury, with a delicate and enfeebled physical constitution, with soft juicy flesh, small and delicate bones, contracted chest, from tight lacing, and want of proper development, from want of proper physical exercise and respiration in consequence.

Here we have in the above case a fetus being developed under unfavorable auspices for constitutional development.

The *enciente* in such cases, being under the doctor's care, every day or two doctors stuff must be taken as something is constantly going wrong with her, her food does not digest, her stomach is acid, in fact her diathesis is of an acid character. It will be remembered that during gestation the tooth germs are formed of the temporary and most of the permanent teeth, commencing at about the sixth week of utero-gestation, and ending somewhere about twelve months after birth. Developmental processes are continued onward until the complete eruption of the teeth, say about twenty years.

All this time dental changes are taking place in regular serial order, and during all this time, local and general influences act more or less powerfully on dental evolution, perfect general organization being essential to perfect dental development.

The confinement within doors of children, and young females especially, and want of sufficient fresh air, and out door exercise in our cities and large towns, where the rooms are not always properly ventilated, is another fruitful cause of badly decayed bones and teeth, which have been referred to already.

The bad and impure air of large towns, where a large amount of coal is consumed, and a corresponding amount of carbonic acid formed and given up to the atmosphere, besides what is furnished by decomposition of filth and respiration, together with other noxious gases, has an important bearing upon the present subject.

The greater the amount of dilution of the atmosphere, the proportion of oxygen is correspondingly lessened, thereby lessening the needed supply to the lungs, blood and other tissues. Whenever there is a deficiency of oxygen furnished for respiration, there necessarily is a deficiency of oxydation taking place in the tissues, and in consequence of nutrition, and when reduced below certain limits, disease sets in, or a tendency to disease is set up, which, if long continued, ends in disease and death. In the latter event the vital resistance is overcome by the inorganic forces to such an extent, that all vital resistance is yielded up, and the organic elements become inorganic again. This normal play of vital, or *vis* *vitae* and mineral forces, constitutes physiology and health, the opposite pathology.

I will cite an instance that is at this time under my own observation, of a fashionable shoddy aristocratic family, that are boarding in the same house where I am now boarding.

There are four children, all girls, ranging from six to thirteen years respectively. These four children have a room, twenty-two by twenty-four feet square, one English governess and one English servant. These six persons remain in this room all day, only go down to their meals, and at sunset they all take a walk down Canal street a few squares, probably on an average three-quarters of an hour's walk. I never hear the least noise from this room of romping of any kind.

For months there is no change in this system, these children are at their books most of the time; they take lessons in music from their mother, grandmother and governess.

These children are being crowded with mental exercise and almost total neglect of physical. Now in case these children are allowed to eat of sweetmeats and candies, with neglect of oral cleanliness, beyond a doubt bad teeth will follow.

The system of education of the fashionable female boarding schools, is what has been described above, in speaking of this family. This system is wrong in the extreme. The poor laborers on the plantations, and mechanics that have to take constant physical exercise, with plenty of good, plain and substantial food, including the negroes of the South, all have better teeth on an average, than the wealthier and more luxuriant. One striking proof of what I have stated is, that when negro women are brought from the cotton and corn fields, to serve as cooks and waiters about the houses of the wealthy, both on the plantations and in the towns, that these same negroes and their offspring have bad teeth, as a rule, all owing mainly to change of diet and habits generally, their labors being less physical than while in the fields.

Whether the opening of the wilderness, and converting forest lands into cultivated fields, has any direct or indirect agency in the cause under consideration, it is rather difficult to determine. The change of habits and customs, including the diet of the early pioneers, as witnessed in their descendants at the present day, might be regarded as modifying influence, at least on dental and osseous development. The effect this change has produced on climates is well known, but to what extent this change has had in modifying dental development, lacks data to base an opinion upon, though no doubt it has had more or less influence.

The malarial districts, bordering on the father of waters, and its tributaries and other Southern streams are unfavorable to normal dental development.

The modifying influence of high solar heat and miasmata, is very great in the constitutions of children, and to some extent on adult persons.

In the Southern States, with debilitating high temperature, during long summers, the per cent. of oxygen breathed is much less than in more Northern latitudes where the summers are shorter and more interspersed with changes from hot to cool weather, thereby enabling human beings in those regions to breathe more oxygen, and in consequence consume more food, ensuring a higher degree of nutrition, functional activity, and solidity of constitution.

In the South the complexions of the inhabitants are not fresh and vigorous as in the North, owing to the causes already enumerated, and the dental structures must, necessarily feel the same influence to a certain extent.

To lay the axe at the foot of the right tree, we must look to the enciente female of fashionable life for the chief cause of all the bad teeth among very young children, during their deciduous eruptive periods, and during their continuance in the jaws, as these teeth received their morbid impress of imperfect development during utero-gestation. Not only are the deciduous germs all laid down, during comparatively early periods in the stage, but the permanent corresponding in number to the deciduous also. See Tomes' work on the subject of dental development.

We know that delicate females, especially during utero gestation, labor under an acid diathesis, especially manifested in the mouth by rapid progress of decays, if there be any or a tendency to decay, unusual to them at other times. We may from analogy conclude that the entire diathesis is more acid, or abnormally so, and that the same diathesis is also carried to the new offspring.

If such be the case it is but reasonable to infer that there will be an insufficiency of lime furnished to the foetus, or if furnished, will not be the normal tribasic phosphate of lime, but a bibasic, or an acid phosphate, which is in a soluble condition, and subject to be ushered out of these tissues, if even deposited there, as it cannot undergo hardening either in or out of the body.

Now most any acid containing hydrogen will produce this chemical change in the phosphate, and also decompose the carbonate. The acids formed in the body are necessarily organic acids and contain hydrogen, and may produce this effect.

We recognize in pregnant females as a rule, especially in fashionable life, an acid condition of the mouth, which is very destructive to teeth, and in consequence any decayed teeth decay much more rapidly than at any other time

Some men imagine that the teeth of the expectant mother are dissolved away to furnish lime for the foetus. Nothing could be more fallacious than this idea. It has no foundation whatever in science.

Rachetic or rickety children, no doubt in my mind, inherit the acid diathesis from their mothers, which is, I believe, the sole cause of the want of hardening, or ossifying and of the bones, in consequence they remain soft and cartilaginous to a greater or less extent, which may be remedied by use of mineral focil and alcalgis, that is to say, the food containing the largest amount of phosphates, which has been alluded to already.

The inflammation of the spine, generally accompanying this disease, is in consequence of the pressure of the vertebra on each other in their unnaturally softened condition.

In summing up the question under consideration, it may be given in these words: The penalties attendant on violation of physical laws, mainly the result of modern civilization in this country. Whenever law is violated penalties are sure to follow as a natural sequence. In order to remedy the evil, mankind must obey law, and the ills that flesh is heir to will disappear. Tight lacing is one of the direst evils connected with the subject under consideration and cannot be too severely censured by all professional men.

ARTICLE II

Influence of Diseased Teeth upon the Health.

BY N. E. HOLLACE, M. D., BOSTON, MASS.

The bad effects of a diseased and unclean mouth upon the general health, are of a more serious consequence than most physicians are aware. In twenty-four hours we breathe twenty thousand times, and what must be the effect upon the delicate structure of the lungs, when for days, months, and years, the air we breathe is drawn through a depository of filth, and is poisoned by being mixed with effluvia arising from decayed teeth and ulcerated gums.

That diseased condition of the teeth and the structures adjacent to them, do exert a most pernicious influence upon the general health, is a fact as well established as any other medical observation; yet it is a sad, but notorious fact, that the great mass of practitioners do not appreciate as fully as they ought the importance of the teeth and their diseases. I am not aware that the subject is ever alluded to by lecturers on the practice of physic, when recapitulating to their classes the causes of functional disturbance and constitutional suffering; certainly, however frequently the physician may look into the mouths of his patients, it is very rarely that his comprehensive glance perceives anything worthy of note in the decaying organs of mastication.

It is fully time that practitioners of medicine should perceive the importance of the teeth, and of their diseases; but until they do so it is the more important that the dentist should be able to point out the causes of obscure disease, which the physician has in vain endeavored to discover, simply because he has sought for it everywhere but the right place.

It might be granted a priori, that as physiological conditions of the teeth, owing to their peculiar position, associations and history, may exercise powerful influence upon the health of other organs, pathological conditions of these same teeth cannot be entirely harmless. Again, if we would examine the structure of a tooth, and perceive how completely its sensitive part is enclosed in an unyielding bony case, we might readily infer from the consequences of compression in other parts that the swollen and inflamed pulp would be exceedingly painful.

If, too, we would regard the close connection existing between the teeth, the rapidity with which the flash of sympathetic pain darts along the nervous cords which vitalize them, and the intolerable and protracted suffering which ensues, upon even trifling irritation of these sensitive filaments, and remember that pain itself is fully capable of deranging the whole economy, and inducing serious and fatal disorder, we might without the aid of much reflection, adopt the very rational conclusion that the diseases of the teeth must be of considerable consequence to the entire organization.

We might also, with similar propriety, conclude that the teeth were not made merely for ornament, and that mastication and insalivation are something more than mere forms of introduction to the stomach; that they are important to digestion which is importance to the entireness of organs and the performance of function, and that if mastication and the insalivation accompanying it be imperfectly performed, some corresponding imperfection of digestion must result.

We might also infer from the known consequence of long continued morbid influences, however unimportant in their immediate action, that disturbance of digestion constantly repeated, must in time, develop evils of a serious character. The old pathological maxim, "where there is irritation, to that part will be the flow," is a valuable lesson to the medical practitioner. It is true that the nervous, and to a certain degree even the vascular forces hurry to the part which throws out the signal of distress, and all the floating energies of the system are directed to the relief of the suffering. If it can be readily accomplished, the equilibrium of the system is soon restored and no perceptible inconvenience results. But if from the impracticable nature of the tissue or organ affected, but little relief can be given, and if the efforts of nature to accomplish a cure or removal of the part, end only in accumulating about it an uncommon amount of sensibility increasing the irritation and demanding yet more of constitutional effort to combat it, the consequence must be such a diversion of nervous influences from other parts as to weaken their force of action and to embarrass their functions.

In short, it is easy to understand that when the first movement towards constitutional derangement has been made, if the cause continues to act, each accession of morbid condition must aggravate and extend the evil, and hence it is that causes in themselves very slight, may if long continued, from the influence of sympathy and the accident of relations, induce morbid conditions of the most serious character.

The extremely hard and dense structure of the bony parts of the teeth, and the great arterial activity and nervous irritability of their lining membranes, which can so powerfully and so long a time defend the teeth against general, local, and morbid influences, are also causes of their producing very extensive morbid effects upon the whole system.

The bony structure of the teeth, however, having in itself but little self restoring power, and their peculiar functions being much less favorable to this natural process than those of any other part of the body The teeth, gums and periotium, being altogether dependent upon each other, this power is much more constantly, and in a much higher degree required, and seems to be much more exerted by these than by any other structures, and the more these powerful efforts are incapable of curing the dental diseases, and resisted in their efforts to remove their causes, the more active is the constitution in its attempts to resist the progress of such diseases, while at the same time a considerable portion of the general health and strength is consumed in the struggle.

Disease in the bony structure, and indeed of the teeth, without being influenced by any other causes than the local disorder itself, produce no greater constitutional effects than the local maladies; but with this difference, that their self-curative action is exerted in a proportion corresponding to the peculiar structure functions, and relation of those parts, and therefore comparatively much greater and longer continued than that produced by diseases of other parts or bones. In this they proceed very slowly, and their morbid effects can only be detected by the most minute attention.

ARTICLE III.

The Case Book.

BY N. M. BURKHOLDER, D. D. S., HARRISONBURG, VA.

What is the greatest present lack of our profession, if it be not a more accurate observation, and a more careful examination? We have colleges, and journals, which are fully equal to the demands of the science. What we want in this relation, is a contribution to the one of good minds, and to the other of good matter—facts, not mistaken observations.

We have State Dental Societies, and National Dental Associations, most necessary aids to progress, I declare; but still only aids in proportion as they bring together men of accurate observation, and of accumulated observation. Otherwise these meetings must amount to little more than that which results in a vocal contest between neighboring chanticleers—"a dissipation of strength in a trial of wind."

Discernment of things as they are—not as they appear to be—is evidently the first step and only method of advance in the attainment of knowledge. But it is not the only step. In the domain of facts there are many so palpable as to present themselves to the eye of the most careless observer. Others are perceived only by the closest scrutiny. And there are still others which are reached by way of induction, from the observation and comparison of things already ascertained to be facts, and by the most exhaustive proof. How great and important is the proportion of these last in the volume of Medical Science. How have we discovered valuable methods of treatment of disease? Certainly not by the most careful observation of the conditions in any one case, following the administration of a drug or the performance of an operation; but by a judicious comparison of these closely observed after-conditions in a great number of cases.

Here one may rely upon the memory, if he would be careless, or if he would profit little by his experience. But so complicated will be the series of observations in any one class of cases, that he must record them, if he would bring out a complete view of each case in order to a close comparison. Otherwise many important facts are obscured or lost; the mental vision of the whole is contracted, and the conclusions are inaccurate.

I verily believe there is no step which promises so much for the advancement of Dental Science to-day, as a general adoption of some systematic method of preserving a compact view of all operations in practice, together with all observations necessary to a fair view of each case.

What is the secret of the importance attached to hospital reports, if it be not the system of accurate observation behind them, and the facility thus afforded for close and extensive comparison—such as would require many years for attainment, if indeed it could be reached at all, by the usual resort to scattering reports from *Dick*, *Tom* and *Harry?* And why may not the office of every dentist be a miniature hospital in this respect? What employment of time will ensure returns so great as that devoted to the preservation of our experience? By this method of accumulating observations, why may not one possess at middle age a stock of experience, otherwise not to be acquired in a long life?

I repeat that there would seem to be no proposition of more importance for the consideration of the dental profession to-day than that which asserts the duty of more carefully preserving our observations, in order to a clearer and more extensive comparison, and thus to the acquisition of *truth* on the questions with which we have to do in the interest of mankind. And I respectfully suggest it for their consideration, with the desire that all practitioners, especially the younger members of the profession, may be aroused to a just apprehension of its importance, and that as a result of its examination, that particular form of Case Book may be projected which shall be at once compact and comprehensive, and which shall most likely secure general adoption.

On the following page will be found a simple form of a Case Book which I have been using, may serve in some degree to illustrate:

Date.	Name of Patient.	Age.	Residence.	Operation and Locality.	Superf'l Decay Removed, &c	Nerves Destroyed.	Fangs Filled.	FILLINGS. Gold.	FILLINGS. Tin.	FILLINGS. Amalgam.	FILLINGS. Temporary.	Extracted.	Artificial Substitutes.	Fees.	Received.
1872.															
Feb 1	A B.	20	Harrison-burg, Va.	R. app. L sup'r Cent. inc				1							
Feb 1	A. B.	20		Post'r dep'r Gdg. surf. R. inf. 2d Mol.				1						5.00	5.00
				R. app. palato angle L. sup. lat. inc.				1							

REMARKS.	RESULTS.
(This embraces nature of disease, description of decay, method of treatment or of operation, condition of the teeth and adjacent parts, character or structure of teeth, and of sal'y calculus—diathesis, and in general any facts which may have a bearing upon the case under treatment as to failure or success.)	(Left vacant, and condition or result of operation entered from time to time with dates affixed—say in five, ten and twenty years from date of treatment.)

NOTE.—The second or lower heading is the continuation of the first on the right hand page of the open book. The pages should be large ledger size, in order to furnish spacious columns for "remarks" and "results." In filling these columns, with a view to facility of review, as well as of record, it is my rule to study to say the most in the fewest words. By the use of the familiar terms 'R." and "L." "app'l" "surf." for incisors. "Ant'r" and "post'r" "app'l" "surf," for the rest. "Grind'g" ("ant'r" and "post'r" depressions), buccal, lingual, labial, palatine surfaces and angles—in their various combinations greatly abbreviated, the locality of an operation can be fixed in an instant. This should be done with pencil and paper at the moment of its completion. At the close of each day entry should be made in the Case Book in full. In a large practice one may prefer to record observations in full only in one or two classes of cases, until a satisfactory number of cases has been collected, when another class of cases may receive his attention. The book may be kept in the order of the Merchant's Day Book, the names of patients following one another from the beginning of the book to the end, or each separate double page may be devoted to a family or to one patient, in either case using an index for reference to the names of patients.

ARTICLE IV.

Baltimore College of Dental Surgery

The *Thirty-second* Annual Commencement of this College was held in Concordia Opera House, on Thursday evening, February 29th, in the presence of a very large audience.

The stage was occupied by the Faculty of the College, the Graduating Class, and a number of visitors, among the latter being Dr. Wayt, of Richmond, Va., one of the oldest and most eminent practitioners of the South, and whose youngest son was one of the graduates, the eldest having graduated in 1855.

After the rendering of several selections of music by the Harmonia Band, the exercises commenced with prayer by the Rev. Dr. E. R. Eschbach, which was followed by the Dean announcing the names of the graduates, and also the authority by which the degree was conferred upon them.

The degree of D.D.S., was then conferred upon the following gentlemen by Professor F. J. S. Gorgas, Dean of the Faculty:

Graduates:	*Subject of Thesis:*
Robert Benjamin Adair. *Ga.*	Extraction of Teeth.
Francis Taliaferro Allen, *Va.*	The Arrest of Caries.
Benson Boggs Bushfield, *W. Va.*	Dental Caries.
Peter Abraham Dantzler, *S. C.*	Dental Prosthesis.
Tilghman Howard Ferguson, *Cal.*	Teeth and their Treatment.
James Lawrence Fogg, *Ga.*	Development of the Teeth.
Finis Ewing Gaston, *Miss.*	Insertion of Art. Dentures.
James Frank Griffith, *N. C.*	Anæsthetic Agents.
George Arthur Hildebrand, *N. C.*	Formation of the Teeth.
Bethel McMullen, *Fla.*	Odontalgia.
Henry Clay Moseley, *Texas.*	Alveolar Abscess.
Hugh Thompson Murray, *D. C.*	Sensitive Dentine.
Bernhard Myer, *Md.*	Tic Douloureux.
James Henry Nash, *Miss.*	Impression Materials.
Walter Robert Snead, *N. C.*	Nitrous Oxide Gas.
William Roscoe Turk, *Va.*	Digestion.
Charles Neville Wallach, *D. C.*	Materials for Filling Teeth.
George Greenhow Wayt, M.D. *Va.*	Causes & Treatment of Caries.

Every one of the class on receiving his diploma, was the recepient of floral favors from his fair friends among the audience. After the conferring of the degrees, Professor P. H. Austen delivered the address to the graduates, giving them excellent advice and reminding them that their future success rested in a great degree with themselves. He urged upon them the importance of prosecuting dentistry as an art, and not solely as a means to enrich themselves; to avoid the temptations of the present age, which he characterized as the "golden;" to regard with horror as well as sorrow the spectacle of corruption on all sides; also the importance of of a classical education. At the close of his address, the speaker was warmly applauded. An address on behalf of the graduating class was then delivered by T. H. Ferguson, of California, who expressed the thanks of himself and classmates for the benefits conferred upon them by the College, their appreciation of the kindness of the Faculty, and their gratitude and delight at the presence of such a large audience. He also referred, in a humorous manner, to the means presented by the press, large staring signs, marble figures, &c., for bringing their names and calling before the public, and concluded by predicting for those who pursued an honest and virtuous course, a successful future. The exercises ended with music and the benediction. The addresses delivered during the evening will appear in the next number of the *Journal.* We cannot close without referring, briefly, to the history of this institution, the oldest in the world, and one which has taken the lead in this branch of special surgery not only in America but in Europe also. The record of the Baltimore College of Dental Surgery shows, that since it was chartered in 1839, by the General Assembly of Maryland, 682 students have received its diploma, and during the last twenty years, dating only as far back as 1852, nearly 1,000 students have been in attendance upon the lectures. There is a Dispensary attached to the College, at which a large amount of charitable work is done for the inmates of orphan asylums, patients of the various dispensaries throughout the city and other charitable institutions.

Though so old an institution and doing so much charitable work, this College has never received any aid from either the city of Baltimore or the State of Maryland.

We understand a bill is now before the Legislature asking for an appropriation to establish a large "Free Infirmary," with all the necessary dental and surgical appliances for a complete and thorough establishment. The object is to have this Dental Infirmary the clinical lecture room of the College, and to bear the same relation to the dental school that the hospital does to the medical; it will in fact be a necessary appendage to such a school, as it will undoubtedly add greatly to the practical knowledge and efficiency of the graduates.

For many years the Baltimore College was the only dental institution in the world; now, however, there are nine Dental Colleges in this country.

SELECTED ARTICLES.

ARTICLE V.

The Extraction of Roots—When is it Indicated?

BY H. L. SAGE.

A widely spread, if not almost universal opinion seems to prevail with dentists—or at least it is usually borne out by practice—that the root of a tooth, if bereft of its crown, might just as well or had better be removed; that it serves no good purpose, its usefulness being gone; that it is, necessarily, a source of irritation, or that the deleterious effects resulting from its presence in the alveolus more than counterbalances the good derived; in fact, the idea that the extraction of a root, in any instance, is a loss, in any sense of the word, never occurs to many. And why should it, when they do not hesitate to advise, or at least reluctantly (?) consent, to the extraction of whole colonies of teeth, that might just as well be saved by filling, that they may insert their cheap substitutes? While it is true that many, perhaps a majority, of roots of teeth which are presented to our notice, are so diseased, filthy, and noxious that their presence in the mouth is a positive injury, it is equally true, that they may many times, serve an important purpose, by remaining as sentinels to guard the integrity and prevent the loss of the hard tissues around them, and in other ways be made useful. The maintenance of the alveoli and the organs implanted therein, is sometimes more dependent on the preservation of roots in a healthful condition than is signified by the usual practice with regard to them. But how seldom is any attempt made to retain them by appropriate treatment. That there *are* times when the retention of the roots of teeth, and the prevention of decay therein, is wise and desirable, it is my purpose to show. Hence the inquiry heading this article.

For example: B. consults Dr.———in regard to the feasibility of having an upper partial set of teeth inserted. Most of the teeth back of the cuspidati are yet remaining, while the latter are in good condition. The left central incisor crown is absent, while the root remains. The remaining incisors have cavities in each approximal surface, some of them large, but the majority of medium size. "To make a good thing," he is advised to have all the incisors, including the root, extracted, and a plate with four front teeth inserted. Another, more conservative, would advise the the extraction of the root only.

What would be the *true* course here?

First—Fill the cavities in the incisors thoroughly with gold.

Second—Prepare the root for the reception of a gold crown. But if it is in a doubtful condition—dead—even though it has never made trouble, first ascertain if it is in a state to receive it, which may be done by the insertion of a temporary test-filling in the root of floss silk saturated with creosote, and a crown filling of oxychloride of zinc, or gutta-percha. If, after a reasonable time, trouble is experienced, with more or less swelling of the gum, it is obvious, that further treatment must be resorted to before filling with gold.

It may be objected, that a gold crown inserted on a front root would be too conspicuous, disfiguring the individual. Allowing that the objection is a serious one—which I do not, in comparison with the inconvenience and trouble connected with wearing a plate—the root may be prepared for an artificial crown, as detailed in the *Dental Times*, vol. vi. page 36, and thus be protected from decay. But the former method, even, is decidedly preferable to the insertion of a plate of any kind, where natural teeth, or most of them, are remaining; for there is not only some inconvenience attendant upon wearing it, but it has an unfavorable effect upon the remaining teeth, be it ever so nicely adapted to the mouth.

In the act of mastication there is more or less movement of the plate from side to side, which causes a greater or less degree ot irritation of the soft parts of the mouth, producing the loss or absorption of the hard tissues, and thus the teeth lose the support therefrom received, often to such an extent that they elongate, loosen, and drop out. A partial plate, with isolated teeth attached, cannot be worn without, in this indirect way, causing *some* injury to the adjoining natural teeth.

Again, if it produces irritation of the soft parts, the fluids of the mouth become contaminated or changed in character, and thus act upon the structure of the teeth.

In addition to the above cited objections and inconveniences, the difficulty of speaking is increased, and mastication is less perfectly performed than when the natural organs, or parts of organs, are retained, and the shape and contour of the latter restored. The object should be to avoid wearing a plate, if possible.

Again, suppose, in the above cited case, to carry out the illustration, the root is removed. From this cause, also, the integrity of the arch is impaired; for the loss of the alveolus is, to a certain extent, varying with individual, soon after, or in time, effected by the process of Nature, who upon, its accomplishment, retires from the particular work in that field of operation, seemingly placing a limit on the duty required of the hard tissues in the immediate vicinity of the root, which was to sustain it in position, dead or alive; but this action having ceased upon its extraction, the adjoining teeth have, by its *removal*, also lost, in a measure, their support.

While there is but one objection to a *well* inserted gold crown on the root of a front tooth—its conspicuousness, but which does not hold good in the case of the back teeth—there are many considerations in its favor, besides those which have already appeared.

To the individual concerned, its presence can not be distinguished from that of the adjoining natural crowns, so far as the sense of feeling, comfort, and efficiency in operation is concerned, while of its permanency and durability for years there can be no question, when the operation is thoroughly and *properly* performed. Noticeable instances of the display of good sense now and then appear, in which the individual, in order to save the remnants of the natural teeth, has quarters, thirds, halves, and wholes of lost crowns, replaced with gold, rather than resort to artificial teeth.

The natural functions are, on the whole, more efficiently aided and conserved by the former course than by the latter.

The following. will afford an example of a case in which the extraction of the roots was *not* indicated. In a mouth, with most of the teeth in good condition, attention was directed to the roots of the left inferior six-year molar, the teeth anterior and posterior thereto being sound. The opposing teeth were also sound and serviceable, and would have been entirely so, had not the superior six-year molar been deprived of its antagonizing tooth; so that all that was needed to utilize the entire machinery of that side was to fill the vacancy caused by the loss of the inferior six-year molar.

The roots had formerly been abscessed, treated, and the pulp and crown cavity filled, but all traces of the operation, excepting, perhaps, a few particles of gold in the extreme portion of the root canal, had ceased to be visible.

The decay extended on the buccal and lingual surfaces, about even with the gum, and below it, on the posterior approximal, or distal, a thin anterior proximal wall only being left standing; so that the roots were deprived of very nearly the entire crown, besides being extensively hollowed out by caries.

By the exercise of patience and very much care, the rubber dam was adjusted, though with difficulty, the root prepared for the reception of the gold foundation—one hundred and four grains of gold, light and heavy—and eleven and one-half hours of time employed, and the operation was eminently successful. During the time allotted to the malleting of the gold—an unbroken period of six hours—not a particle of moisture obtruded upon the filling, and the tooth is now as useful as any of its fellows, and is believed to be so secured, so adapted, so condensed, and so finished as to insure its retention for a long time.

There are other cases in which the extraction of roots is not advisable. Persons whose teeth had presented the characteristics of hardness, density, yellowness; of great firmness, with hard, healthy gums, but which are now worn down, by occlusion, nearly to the margin of the latter, should not permit the extraction of the roots, for it is a question whether they are not, on the whole, capable of greater usefulness than a set of artificial dentures would be. We usually find associated with this class of teeth, thick, bulging alveoli and gums, which render the insertion of *serviceable* dentures quite difficult, and the possessor of the former awkard, if not with little patience in the management of substitutes, especially if *he* has passed the prime of life.

But that the extraction of roots *is* indicated when artificial teeth, with the exception of those on pivots, are to be adapted to the mouth, may, with probable truth, be asserted. In most cases, the irritation produced by the insertion of the plate over roots, would be a sufficent reason for their removal, aside from the fact, that most roots are in such a condition as to be offensive and deleterious, Besides, the permanence and usefulness of the substitue, is compromised and hindered by their presence. In most cases, nature is constantly at work for the expulsion of roots; and so it is with *entire* teeth which have lost their antagonists; but the former, if mounted with artificial crowns of gold (when the indications exist for such a course), are as likely to be retained as dead natural antagonizing teeth, which are in a state to be tolerated, for they are then in a condition to perform service, the lack of the ability to do which, had previously placed nature in more formidable antagonism with them, and hence the attempt to expel them from the alveoli.

Again, take a person with teeth, in the main, excellent; who has scrupulous regard to their cleanliness, and is particular in the extreme; with none of the incisors and canines absent; with the crowns of the second superior bicuspids, for instance, gone, but the roots remaining, and not in any manner exerting a deleterious influence in the mouth, and the gums about them healthy.

In such a case, the roots, if sound, may be utilized by building crowns upon them. If this is not done, it is well to fill, at least the pulp cavity, with gold, and thus preserve them, that they may prevent, by their presence, the loss of alveolus.

Many dentists are of the opinion, that incisor and bicuspid crowns of gold can not be rendered permanent; but, having had positive proof to the contrary, I am not disposed to concur with them in this belief. In a case like or similar to the foregoing, the insertion of a plate would seem to be of doubtful expediency, and productive of more injury than benefit.

Even the lateral incisors, which are the smallest teeth in the mouth (if we except the lower central), when decayed to such an extent that the crowns are wanting, may be restored with gold—even the inferior.

If Miss B., makes her appearance with one of the right or left upper or lower lateral incisor roots bereft of its crown, and the other teeth capable of being made useful, it is my duty to advocate such a course, and prepare the root by treatment, if necessary, and the nature of the case will warrant it, for the reception of a gold crown; which, with its *one* objection, of conspicuousness or unnatural appearance, can not overbalance the positive advantages of comfort, natural feeling, ease in speaking, cleanliness, heathfulness, preservation of the hard tissues, the adjoining teeth, etc. This practice may apply, in some cases, not only to one but to several teeth in like condition.

Again, suppose Mr. N., a clergyman, calls. He has an excellent set of natural teeth, in form, structure, firmness, and regular appearance, with a good *physique* to back them. The right superior cuspidatus was filled seventeen years ago, the root included, but three-quarters or more of the crown has, by neglect, or otherwise, been suffered to decay and break down. It looks badly and interferes with speech somewhat, which is unfortunate, especially as he is a public speaker. It is a very firm, healthy (though lifeless) root; at least it has no pulp—or periosteum lining the pulp chamber.

What is the course indicated here?

Everything being in readiness, by previous preparation and confidence in its integrity, commence at the end of the root canal, fill, build down, and restore the shape and contour of the tooth. If well done, there is no question about its permanence. Who would advocate extraction in such a case? To do so would be a grievous blunder, to characterize it by no harsher term.

Those who object to contour fillings must confine their objections to fifths, quarters, and thirds of crowns, in which

full restoration to shape and size may not be unqualifiedly essential, and then at the risk of being deemed guilty of the folly of choosing the greatest of two evils—always provided the consent of the patient can be obtained to the exercise of the best judgment of the operator. * * * *
—*Dental Register.*

ARTICLE VI.

The Antrum of Highmore and its Diseases.

BY LEON. F. HARVEY, M. D., D. D. S.

[Read before the Eighth District Dental Society.]

Perhaps an examination of the history and anatomy of the antrum of Highmore, will be interesting as a preliminary to the consideration of its diseases. We find that its name was given to it by Nathaniel Highmore, a physician and anatomist, who was born at Fordingbridge, in Hampshire, in 1613, and educated at Trinity College, Oxford. He took his degree of M. D. in 1642, and settled at Sherburn, in Dorsetshire, where he became eminent in the practice of the profession. Highmore was a theorist from necessity, the opportunities for practice in those days being few and far between. In publishing the description of the Antrum Highmorianum, he led to the discovery of a disease until then unknown, and to an operation, which was not attempted, however, until fifty years after. He also noticed that the alveolars penetrated into the cavity, and and that they were only separated by a thin scale. Highmore published *Corporis Humanis Disquisitio Anatomica* fol. 1651 ; *The History of Generation*, 8 vo., 1651 ; *De Hypocondriaca Affectione*, 12 mo., 1660. He died in 1685. It is termed antrum as similar cavities are whose entrance is smaller than the bottom of the cavity. Its situation is in the superior maxillary bone above the bicuspid and molar teeth, the fangs of which rise above the floor, or perhaps we should say form its floor, they being covered by bone. It has an opening into the middle meatus of the nose, the form of its cavity being conical. Its lining membrane is a continuation of the mucous membrane of the nose, known as the Schneiderian. Conrad Schneider, who had the honor of attaching his name to it, was an anatomist of Wittemburg. In 1661, being a contemporary of Highmore, he published a treatise entitle *De Catarrhis.* Up to his time it was supposed that the secretion of the nose came from the brain, and he announced to the world that it emanated from the membrane of the nose. This membrane is also known as the Pituitary. There is a constant secretion taking place in this cavity which escapes through the middle meatus into the nose. The arteries of the antrum are the superior dental, and the infra orbital, both being branches of the internal maxillary artery, one of the terminal branches of the external carotid. The anterior, middle and posterior dental nerves may be found in the antrum, running under the mucous membrane, giving off branches at different points.

This cavity is liable to several diseases; the first which we will consider, is the result of inflammation from some cause, known or unknown—a purulent discharge from a dead tooth, a blow upon the face, an extension of a severe catarrhal attack may all produce inflammation at this point. It may exist for years and yet give the patient but little inconvenience; at last the accumulation of muco-purulent matter may be so great that pressure on the walls takes place and a slight protuberance is observed, and if exit is not given to the fluid, nature forces an opening through the bone and integument. At first there is a dull, heavy pain, the feeling being described as if everything was filled up and a heavy pressure was constantly kept up. When the inflammation is at its height, there are throbbing and lancinating pains. If there is not an escape of muco-purulent matter by way of the nose, an opening should be made through the floor of the antrum by extracting a bicuspid or molar tooth; and should that not lay it open, a drill should be used to finish the operation. Of course in the extraction of the tooth, its removal will depend on its condition; taking that one, the loss of which will be least felt, or possibly its loss prove a gain. Should a dead tooth be the cause of the trouble, that one should certainly be removed. In this disease it is frequently the case that the opening into the meatus is entirely closed; if such be the condition the artificial opening should never be allowed to close till communication is perfectly established between the antrum and the nostrils. If the pressure be very great, the lachrymal duct may be obstructed and the fluids of the eye will flow down the cheek. The discharge oftentimes is very offensive. An entrance being made, the cavity should be thoroughly cleansed out when the discharge has ceased, by gently injecting warm soap suds made with castile soap, after which, use warm water in which a few drops of Tinct. Calendula have been dropped. This having been done, a weak solution of Iodine or Chloride of Zinc should be thrown into the antrum. The lees of wine or port wine may also be used to advantage. This should be repeated every day, or every other day after a few weeks, till all discharge ceases, the purpose being to remove all inflammation and establish a healthy secretion. The antrum should be syringed out every time an application is made. If the general health is impaired, tonics must be prescribed; and should there be a scrofulous diathesis present, it would be well to use the course of treatment generally observed in such cases. There should be left in the opening a pledget of cotton to keep it open.

Abscess of the antrum is sometimes observed, though very rarely. If there be pus present, which must always be the contents of an abscess, we shall have the characteristic signs due to its presence; rigors and lancinating pains. Sometimes there will be fluctuation of the part. The same course must be pursued here, namely, to make an exit for the matter. Necrosis may take place in the case of an abscess. If this occur, the bone should never be removed till complete separation has taken place. If the swelling of the face exist after a removal of the disease, it may be reduced or entirely removed with a roller and bandage.

Some of the cases yield readily to treatment, especially recent ones, but many will be found to demand a long course of medication.

Mrs. H., æt. 45, came to us after having been treated for some time for catarrh, having suffered from a difficulty in the region of the antrum for four or five years. On examination there was observed some swelling on the right cheek; the patient had been annoyed for a long time with a profuse discharge, very offensive, from the nose, muco-purulent in character—the pain at times was very severe, so much so as to keep the patient awake nights, extending even to the lower jaw. When we saw her, the discharge through the nose had ceased. Feeling confident that an opening made into the antrum would in a measure relieve the pain, the first molar was extracted, from which opening there was a copious discharge of muco-purulent matter, much to the relief of the patient.

We then injected into the cavity warm water and castile soap, after which warm water impregnated with creosote, the cavity being washed thoroughly every day; astringents were used, as Tinct. Myrrh, Chloride of Zinc, &c.

Continuing this treatment for six months the trouble was entirely removed. The opening was kept open with pledgets of cotton, which very frequently gave much trouble by getting into the antrum.

I am indebted to Dr. Watt, of Cincinnati, for the following suggestion in regard to the use of a tent. Taking a small piece of slippery elm bark, he cuts it to fit the opening made in the antrum, and to it attaches a ligature. With this tent he closes the antrum and allows the ligature to lie on the gum. Should the tent get into the antrum, it can be readily removed by the use of its silk attachment.

Mrs. A., æt. 35, said she had been troubled for two or three months with a slight pain at times in the upper jaw, there was a constant discharge of an offensive odor from the nostrils, no swelling. Extracted the second bicuspid and there was immediate relief with the copious discharge. Followed about the same treatment as in the last case, discharging the patient, however, in a much shorter time.

Mrs. S., æt. 30, fell, striking on her face. Soon after, she had every symptom of disease being present in the antrum, even to an offensive discharge. With all the facts before us, it seemed certain that the difficulty lay in the antrum, and therefore the second bicuspid was extracted, but no discharge followed and there was no relief from the continued pain. All the usual remedies were made use of but they were of no avail. Lately we have heard from the patient, who now resides in another State, and have learned that she is still a great sufferer, and it is now supposed that the trouble all arose from the bite of an insect. This last case we refer to, to show the liability to error in the diagnosis of affections of this cavity.

Tumors are very often found growing in the antrum, and their diagnosis is at times difficult. They may be fibrous, osseous, fatty, cartilaginous, erectile, or encephaloid. The former is of the most frequent occurrence, and is most frequent in patients of advanced age. Next to these come the encephaloid. The osseous are remarkable for their attempts to eliminate themselves by necrosis. Tumors of all kinds find their origin in the mucous membrane of the antrum. They will produce a protuberance according to their density. Some attain to a very large size. As the size increases, the nasal cavity is very frequently obstructed, deglutition and respiration are impeded, and an upward pressure towards the eye produces disorders of that organ. How are we to distinguish a tumor from fluid accumulations? We are to ascertain if there are any projections beyond the walls of the cavity. If it be a tumor, after a time it will present itself to the surface. As a rule it will insinuate itself between the bones, pressing them apart, if it be encephaloid in character. Sometimes the adjacent glands may be affected by a malignant tumor. It is observed that simple tumors occur more frequently in the young, whilst the malignant forms are to be found in middle or advanced life.

I shall cite one case here to show the difficulty of the diagnosis. It was under the care of Mr. Ferguson of Kings College Hospital, Marianne S., æt 25, was admitted in the Adelaide ward March, 23, '50; was born in Hampshire and had always lived in the country. Her health had never been strong; she had always been looked upon as delicate, and was subject to headaches. About eight months before, a swelling appeared on the right cheek in the situation of the antrum about three-quarters of an inch external to the right ala nasi, and on a level with that process. It came on imperceptibly without any pain and when she first noticed the tumor it was about the size of a pea, immovable and not painful on pressure. Since that time it has gradually increased, but of late somewhat rapidly. On admission, the tumor was about the size of a hen's egg, involving the whole of the non-alveolar portion of the superior maxilla on the right side. Externally it formed a large smooth undiscolored projection, drawing the eye a little downwards. On passing the finger inside the cheek and along the outside of the teeth, the quantity of the gum between the latter and the projection of the swelling was felt to be very small. On looking into the mouth the right half of the hard palate presented instead of the normal cavity, a smooth convexity rather more than an inch long and half that width, this convexity lying between the median line and the gum of the molars and bicuspids of that side. On pressure, which gives the patient no pain, there is a feeling of some fluctuation and the hand experiences an elastic tense sensation. When strong pressure is made on the cheek the patient feels the thrust downwards. The first and third molar and the first bicuspid are destroyed by caries and the other teeth are likewise affected; in fact the patient has always suffered from toothache and she has hardly a sound tooth in her head. The zygomatic muscles have been so stretched that they have become paralyzed, and on smiling, the right corner of the mouth instead of being drawn upwards is pulled downwards and outwards, the triangularis oris muscle alone acting. The most yielding part of the tumor is the situation where it first appeared. Five days after admission the patient was attacked with severe inflammation on the left side of the face, involving the glands and gums. It was sometime before she recovered from this complication, the disease of the antrum remained, however, in the same state as before described. Mr. Ferguson, considering that the time had now arrived to adopt operative measures for this affection, had the patient brought into the theatre on the 27th of April, and determined to proceed to the removal of the superior maxilla, if the cavity of the antrum were really, as suspected, found occupied by a solid tumor. Bearing, however, in mind that the appearances presented might be owing to an accumulation of fluid, the operator resolved to make an exploring puncture through the gum before any further steps were adopted. An exploring needle was therefore passed into the tumor, and when fluid had been seen to escape, Mr. Fergusson took up the scalpel and made an incision through the gum down to the anterior wall of the antrum and took out a portion of the same, which was very much thinned. By this proceeding a quantity of glairy fluid, containing flakes of cholesterin was let out of the antrum, and the nature of the tumor being thus ascertained, no further interference was required, and the patient removed. The swelling went on diminishing in size for the next few weeks, and the patient was discharged on the third of May in a pretty satisfactory condition.

Here was a good surgeon ready to make an operation for a tumor when there was really only fluid present. Gensoul, a noted surgeon, has been known to make incisions in the cheek when only an antral abscess was present. In the diagnosis, the puncture should be made to be sure with what you have to deal. The only treatment for tumors of the antrum is extirpation. This the dentist, unless he makes a specialty of removing tumors, will not do, and the case is sent to a surgeon. Be careful that you do not send a diseased antrum or an antral abscess to be operated upon for a supposed existing tumor. There may be a collapse of the antrum from disease occurring within it. For this there can be no remedy as in the expansion. In some cases the deformity is quite marked.—*Dental Advertiser.*

ARTICLE VII.

Folsom's Improved Atmospheric Dental Plates.

In reply to our correspondents, to whom our name has been given as reference, and who desire to learn that we know about Dr. Folsom's improvement, we publish the following as the sum total of our personal knowledge in the matter:

On the 1st day of January, 1867, letters patent were granted to N. T. Folsom, for certain improvements in atmospheric dental plates. These improvements consist in what Dr. F. terms packing ridges, either hard or soft, extending round the border of the plate.

Dr. Straight also received a patent, November, 1869, for the attachment of a soft elastic edge on the rear of a rubber plate.

A patent was also granted Dr. Hurd, September, 1866, for the mode of constructing a flange, either hard or soft, around the edge, or border of a rubber plate.

Patent was also granted Dr. Twitchell, for a soft rubber cushion, or flexible lining for dental plates.

The end sought to be attained by these various improvements being the same, viz., to secure a plate firmly in the mouth, so that it will not drop while eating or speaking; we mention them, in this connection, none of these so-called improvements seem to have met with much favor with the profession so far as we have been able to learn. Dr. Folsom's is undoubtedly of the most practical value, and hence has been more generally adopted. The hard ridge on rubber plates, described by Dr. Folsom some three years since, and published in the first number of this *Journal*, has been used by the profession here, for five or six years past, and by many thought to be of much practical value.

The soft ridge was brought before the dentists of our city in March last, by Dr. Folsom himself. He put his soft ridge on a set of plates in our office. The patient, an old gentleman for whom several unsuccessful attempts had been made to supply with artificial teeth, with which he could eat. For the first few days after the soft edge was put on the plates, the patient seemed to get along quite well, but in less than two weeks we met him, and learned to our surprise and regret that he could not do any better, if as well, with his teeth as he could before any improvement was made on them. He gave them up and has not worn them since. In justice to Dr. F., we should here state what we believe to be true, that the failure in this patient's case was due to causes over which soft ridges, flanges, soft edges, or anything short of a rivet through the plate could not prevail.

We have never applied Dr. F's improvement; have never seen it applied; have heard of but two cases, since his visit here, where it has been used, and in both of these cases it was a failure; it may have been the fault of the operator. We have no doubt, if properly applied to a plate in extreme cases, it may serve a good purpose, by aiding the retention of the plates in position till the patient has become accustomed to them, and learned the art of using them. We do not think it can serve more than a temporary purpose. From personal observation we find that soft rubber soon deteriorates when worn in the mouth.

The following directions for constructing a plate with the hard ridge are taken from Dr. Folsom's circular: E.

"To prepare a model for an upper set, with my improvement, take an impression in wax; trim off the surplus; press out the wax that comes against the labial surface of the dental ridge, to give room for plaster; then cool the wax;

you now have a cup suited to the case, in which take the impression in plaster, mixed in a solution of sulphate of potassa (Dr. Chamberlain's rule is one-half an once to a quart of water—sometimes more and sometimes less, according to the plaster); varnish with ethereal varnish. Mix the plaster for the model with the same solution; dip the impression in water, and immediately pour the plaster. The next step is to examine the mouth, to ascertain where the edge of the plate will extend, then mark the line on the model; examine the mouth again to ascertain the yielding nature of the parts of this same line, and note the hard and soft places; then with a suitable instrument, cut a groove in the plaster model, along the entire line of the edge of the plate, one-twentieth of an inch wide, varying in depth from one-sixteenth to one sixtieth of an inch. As a general rule, I commence cutting the groove in the rear of the tuberosity on the right side of the mouth; at this point deep, then shallow till I reach the soft part at the side of the back of the mouth, which I cut deeper than any other point, then shallow till I reach the corresponding point on the opposite side; from the rear of the tuberosities to the canine teeth, comparatively shallow; around in front, from canine to canine, quite deep. I endeavor to cut a well-defined groove-

A plate made on this cast, if not injured in vulcanizing or otherwise, will fit not only the mouth, so that atmos. pheric pressure is obtained, but has a packing ridge encircling it which prevents ingress of air under it, and thereby secures the pressure on the outside. I make the ridge as high, all round the plate, as possible, and not pinch the flesh.

To make a plate with the soft or elastic Packing Ridge; the model is prepared as for the hard ridge. Cut the pat tern plate short, so that it will not reach the groove by at the least one-eighth of an inch. Wax up the job taking care care not to extend the wax beyond the pattern. Take a strip of soft rubber, wide enough to just cover the groove and reach the waxing, lay it along the edge of the pattern plate in its place, and join it to the waxing with melted wax. Now mix some plaster, and cover the soft rubber, and let the plaster extend down the sides of the cast or model. It is now ready to flask. After opening the flasks, wash out with boiling water all the wax from the soft rubber; take a strip of soft rubber, and pack on the soft rubber that is confined in the plaster; then take a strip of vulcanite, wide enough to cover the soft rubber, and pack it on the soft all around. Now pack and vulcanize as usual.

In finishing a plate with either hard or soft ridges, be careful and not mar the packing. Trim the soft rubber with sharp scissors.

In fitting a plate in the mouth with the hard packing, reduce the ridge where it is too high, by scraping with a sharp knife cautiously. It is generally well to reduce the plate inside of the ridge with a hoe-shaped instrument, at the time the ridge is reduced.

The same directions apply to the under plates, excepting the ridge is not more that half as high."—*Missouri Dental Journal.*

ARTICLE VIII.

Liquid Nitrous Oxide as an Anæsthetic.

BY EDMUND ANDREWS, M. D.

Many months ago I made experiments on the use of nitrous oxide mixed with oxygen, with the view of adapting them to the purposes of anæsthesia in general surgery. These experiments, which were published in *The Examiner*, showed that there were several difficulties in the way of using, for prolonged operations, the ordinary gas of the dentists, one of which was that the gas never makes the least approach to purity, containing always from 10 to 25 per cent. of free nitrogen and oxygen. As it is almost imposible to separate the free nitrogen without an apparatus for reducing the gas to a liquid form, I suspended the experiments until thisdeficiency could be supplied.

Three weeks ago I received from Johnston Brothers' Dental Depot, 812 Broadway, New York, an apparatus and a supply of liquid nitrous oxide equal to 100 gallons of gas. It is well known that under a pressure of about 750 pounds to the square inch nitrous oxide condenses to a liquid, while the free nitrogen and oxygen, contained as impurities in it, remain in the gaseous form in the top of the receiver, hence the condensation serves as a means of separating the oxide from the other gases. The liquid was contained in a strong flask about four inches wide and twelve inches long. When it is desired to use the anæsthetic a faucet is turned slightly, allowing the gas to escape into a rubber tube leading to a small sack, and thence to an ordinary inhaler, so contrived, with valves, that the inspirations are drawn from the sack and the expirations pass into the open air. When not in use the whole is packed in a neat case about five inches square and fourteen inches long, with a handle on one side for carrying it, and weighs, perhaps, twelve pounds. The contents of one flask will last long enough for about three surgical operations of moderate length. The intention is to have the flasks kept ready filled at drug stores and dental depots, where the surgeon can return his empty flasks and procure filled ones.

The apparatus being new to myself and assistants, it is probable that we did not obtain the best possible results from it, but the following cases illustrate the effects:

Case 1. Five fingers to be amputated for frost bite, followed by mortification. The patient came under the influence slowly and with difficulty. At length his consciousness seemed to be gone, and his countenance presented the blue asphyxiated look, characteristic of full anaæsthesia by nitrous oxide, nevertheles he writhed and struggled during a large part of the operation, and afterward complained that he felt every cut. The result was decidedly unsatisfactory

Case 2. This was mortification of a single finger requiring amputation. The patent was given the gas more freely, by turning on a more copious stream from the flask. He was anæsthetized in about forty seconds, and went through the operation without any consciousness of pain.

Case 3. This was operation upon varicose veins in the leg. The patient went under the influence of the anæsthetic in 35 seconds, obtaining complete insensibility. In this state I injected the veins of the leg in about ten places with tincture of iron, without causing any pain.

Case 4. The inhalation commenced, but the supply of gas gave out, and the anæsthesia was completed with ether.

It is stated that the operation of ovariotomy has been performed under the successful influence of this anæsthetic in New York.

The present state of knowledge on the subject, derived largely from my own investigations, may be summed up in the following propositions;

1. Nitrous oxide is the safest anæsthetic known. In a laborious collection of statistics which I made, embracing over 200,000 cases, I showed that the mortality of these articles was nearly as follows:

Chloroform, one death in 2,723 cases; sulphuric ether, one death in 23,204 cases; mixed chloroform and ether, one death in 5,588; bichloride of methylene, one death in about 7,000; nitrous oxide, no death in 75,000. (*Chicago Medical Examiner*, 1870.)

2. Nitrous oxide anæsthetizes the patient in about forty seconds, while the other articles require from five to twenty minutes. The patient also awakes quickly, and does not suffer from nausea afterwards.

3. The liquefaction of the gas renders it portable, so that it can now be easily carried to patients' houses.

4. The expense, after the manufacture and sale are well established, will probably be less than that of ether.

5. Nitrous oxide always produces a purplish flush of the face, indicating partial asphyxia, though without any sense of dyspnœa, hence it cannot, in prolonged operations, be given continuously, but must be alternated with short intervals of breathing atmospheric air, renewing the inhalation

of the gas as often as the duskiness of the countenance subsides.

6. It is not certain yet that all patients can be kept steadily asleep in this manner. Some of them seem to arouse after the first short sleep, and cannot be again fully quieted, even if the gas be pushed to the production of a decided flush of asphyxia in the countenance. Perhaps further experiments will remove this difficulty.

7. Nitrous oxide, in the gaseous form, may be mixed with one-fourth its bulk of free oxygen, and then does not asphyxiate. In my experiments on this subject I kept one patient nine minutes breathing the mixture, but the anæsthesia was less profound than was desirable.

8. If the patient be kept absolutely on pure nitrous oxide alone, he will die by asphyxia in spite of the general safety of the article, as it is incapable of oxidating the blood. The assistant administering it must pay attention to this matter, and give atmospheric air as required. I placed a rat in nitrous oxide gas from a dentist's gasometer, and the animal died in ten minutes, while another rat placed in a jar of the gas mixed with pure oxygen, remained in it half an hour and was taken out alive.

9. Although it is not yet certain that the nitrous oxide can be made generally available for long operations, it is already for short ones the most convenient, safe and pleasant anæsthetic known.—*Chicago Medical Examiner.*

ARTICLE IX.

The Celluloid Base.

BY GEO. W. TRIPP.

Mr. Editor,—In a communication of mine which appeared in the January number of the *Dental Cosmos*, I remarked that I held myself ready to impart instructions to such of the profession as might be unacquainted with the processes of working the celluloid base successfully. I admit that this offer was put forth to induce my brethren of the profession to abandon the use of rubber, and I foresaw that the proposition would devolve on me replies to letters from those disposed to avail themselves of such offer; but I hardly anticipated such a shower of letters as the mails daily pour in on me, which I find it impracticable to answer individually. I therefore avail myself of the pages of the *Dental Cosmos* to reply to all who have done me the honor to take me at my word.

For myself, I am willing to adopt celluloid *to the entire exclusion of rubber* for both new work and for repairing old plates, made of either celluloid or rubber, on the satisfactory assurance given me that the late improvements upon the earlier processes of producing the celluloid base secures a hardness, toughness, solidity, and permanency of form that compares favorably with rubber. The desideratum of avoiding *shrinking of the plate* is claimed to have been attained by the successful hardening, toughening, and solidifying process in the manufacture of the celluloid base; and with this (to me) satisfactory assurance, I have no hesitation in recommending it to my patrons as indeed preferable to rubber, in view of the demonstrable fact that the rubber base contains properties in its composition prejudicial to health.

In writing for publication, I am necessarily restricted in space, and can present but a few of the more important and prominent rules or guides to its successful use.

1st. *It is to be worked in oil*, sufficient heat not being attainable with water in an open vessel; the highest temperature which can thus be reached being 212°, whereas the working of the celluloid requires 320°.

2d. *To mend a celluloid plate*, cut away the plate as required; then wet celluloid filings or scrapings with ether and alcohol (which, combined of two thirds ether and one-third alcohol, are a solvent of celluloid), and when in a tacky or thick plastic state, slightly dress the parts with it, which insures a more ready union. This done, pour your solvent into a small glass vessel, closing the top with the palm of the hand or otherwise, in order to prevent the escape of the ether. Into this put the piece of celluloid to be used, allowing it to remain immersed a few minutes; until the surface only becomes somewhat plastic; then take it out and place it in position, and heat in oil to a temperature of 320°, by the thermometer. On removing the cast from the oil, care must be taken to *cool it thoroughly before opening the flask* for cutting out the plate, in order to obviate any warping or change of form. The parts will be found united perfectly.

The most delicate thin gums need never be broken in the use of celluloid. As a safe precaution to insure firmness of the teeth in position, it will be well to champer the tops of the gums, so that the celluloid may be left intact over them when finished. Raise the heat to 260°; then turn down a little with the finger to a point of *slight* resistance, being careful not to force it much until you reach 300°, but when 320° are indicated, *down with it.* No fear need be apprehended of a softening of the cast from heating; it only becomes the harder. No solutions are needed to harden the cast. Any imperfection found in a plate on removing it from the flask may be readily repaired and made complete by using a piece of celluloid (first moistening its surface and that of the imperfect portion of the plate with the solvent), by rubbing and pressing it into position with the fingers, leaving it to be worked down when dry; or, the filings or scrapings may be moistened with the solvent and applied with a spatula. The former is perhaps preferable. In either case, however, a reheating is unnecessary.

It may be esteemed worthy of mention, that when a celluloid base is found to be not in acceptable form for the cast to be used, it may readily be adapted to it by immersing in boiling water, when it can be contracted or distended to meet the want.

The question is asked, is celluloid as strong as rubber? I reply, I have never known one to break. When in the mouth it becomes more elastic from the warmth imparted to it; hence, adapting itself more perfectly, it is less liable to break in using. Patrons should be advised to wear their plates on retiring for the night, thus avoid any risk of contraction or shrinking. Should any contraction or shrinking take place, it may easily be relieved by scraping off a little at the proper points.

Again it is asked, can a new block of teeth be attached with celluloid to a rubber plate? I answer, dovetail, drill holes through plate, countersinking on opposite side (just as is done when rubber is used to repair with); place celluloid in position, and heat up in oil, pressing together as in making a new celluloid plate.

It is further asked, can a plate be used a second time in case of being obliged to work it over? I answer, it can be done successfully by wetting the parts with the solvent. If teeth are to be substituted, remove the old ones, and proceed with the old plate as with a new one. If there be any broken parts to repair, soften your filings or scrapings of celluloid with the solvent, and apply the same to the broken parts, avoiding a too liberal use of the plastic mass.

In using scraps of celluloid for repairing a plate, soften their surfaces in the solvent (as before stated), when the parts will unite one with another perfectly, and as firmly as an original base or plate. It need not necessarily be in one entire piece to insure strength. A good hard cast is of primary importance.—*Dental Cosmos.*

MONTHLY SUMMARY.

Oxygen Gas in Pulmonary Diseases.—Dr. H. M. Read reports in the *N. Y. Medical Journal* a series of cases of lung disease, in which the inhalation of oxygen diluted with common air was added to other treatment. In some instances great benefit accrued, and in others none. Experiments similar in kind were tried in England by Dr. Beddoes and others nearly a century ago. The doctor was very sanguine that he had discovered at last a cure for many cases of consumption. But for some reason the practice was abandoned, to be revived now as a novelty.—*Pacific Med. and Surg. Jour.*

Carbon Bisulphide, Rhigolene, and Oleum Menthæ Piperitæ as Local Anæsthetics.—Dr. S. R. Nissley, of Pemberton, Ohio. writes:—"I have been in the habit of using the bisulphide of carbon as a local anæsthetic for several years. I have tested its efficacy and patency in facial neuralgia, hemicrania, odontalgia, and lumbago, and the relief it afforded to the sufferer was almost instantaneous. My mode of application was this: place a pledget of cotton into a wide-mouthed bottle, saturate it well with the bisulphide and apply it to the painful part, and as soon as the patient complains of smarting sensation change the bottle, carefully following the course of the principle nerve that seems to be involved in the difficulty. I have used a combination of rhigolene and the oil of peppermint as a local anæsthetic in a number of neuralgic cases that presented themselves at my office for relief, and thus far my success in those cases has been far beyond my most sanguine expectations. After several applications, they express themselves cured. I have recently been in the habit of adding an etherial collodion to the compound, and I am gratified to say that in the combination I have a specific which will, under almost any circumstance, when the part is accessible, relieve the patient instantaneously. Its effects are magical. In a severe case of tic douloureux this compound was tried, and the patient was relieved.—*Jour. Mat. Med.*

Chloride of Zinc with Chloride of Potassium.—Ordinary chloride of zinc is unsatisfactory as an escharotic, because of its hygroscopic tendency. M. Bruns states that this defect may be overcome by fusing two parts of the chloride of zinc with one of the chloride of potassium, and casting in sticks—the latter to be wrapped in tin foil.—*Practitioner and Pharmacist.*

Burns and Scalds.—Every family should have a preparation of flaxseed oil, chalk, and vinegar, about the consistency of thick paint, constantly on hand for burns and scalds. A noted retired physician states that he has used it in hospital and private pratice for the past forty years, and believes that no application can compare with it, as regards relief of pain and curative results.—*Druggists' Circular.*

EDITORIAL DEPARTMENT.

A New Filling.—At the April meeting of the "Odontological Society of Great Britain," Mr. Fletcher described his new method of filling teeth as follows:

"The filling is a mixture of two parts of silica ground to an impalpable powder, and one of gum copal. It requires to be broken into pieces which are small enough to go into the cavity, and afterwards to be condensed with a hot smooth instrument, which is kept slightly moistened with oil to prevent adhesion. It can be built up to any form, and afterwards filed to shape, the edges carefully condensed with a warm instrument, and the surface polished. The easiest way to keep the instrument slightly oily is to have at hand a gun-wad, or small piece of felt soaked in oil, on which it can be occasionally rubbed. It is in some cases better to soften the pieces of filling over a flame before inserting them in the cavity; but they must be inserted and condensed very quickly, as they become hard as stone in two or three seconds, if not kept hot. This sudden hardening is one difficulty which it requires practice to overcome. I have used the filling for about three months in all positions, and the only case in which I have had the slightest change in it, is in the first filling I made with it, which was not properly condensed. It is not intended to replace gold, and I did not wish any one to suppose so; but it is, so far as I have seen, a good cement, and more trustworthy than any other we have, approaching the color of the teeth. The copal wears slowly off the surface of the compound, leaving a surface of silica as smooth as glass, which appears unchangeable. I shall be glad to send a small quantity to any one who will try it carefully and report on it. If more is wanted, the process of making has been published, and no doubt the depots will take the matter up."

The Cummings' Patent.—To the question, "Does S. S. White hold any stock in the Goodyear Dental Vulcanite Company, or is he interested, pecuniarily or otherwise, in the success of the Goodyear or Cumming's patents?" Dr. White replies as follows:

"I take pleasure in saying that I am not, and that I never have been, a stockholder in the Goodyear or other Vulcanite Company, by whatsoever name called; that I am not, and never have been pecuniarily interested to the extent of a single dollar in the Goodyear, Cumming's or any other patent for the application of rubber as a base for artificial teeth; nor have I any interest in any of the materials for base in the market—celluloid included—except as a dealer."

And the following is the answer to the statement that Josiah Bacon owns the celluloid base, taken from the *Cosmos*:

"Josiah Bacon does not own the celluloid base, nor any of the patents under which it is made, sold, and used ; nor has he any interest in said base. or patents, or any portion thereof, in any manner whatsoever.—I Smith Hyatt, *Secretary Albany Dental Plate Company*.

The following communication to the *Cosmos* will throw some light upon the subject of the Cumming's patent:

"The importance of the appeal now pending in the Supreme Court of the United States, instituted to declare this patent null and void, cannot be overestimated. Considering that of the twelve thousand dentists in the United States, at least one-half, in their practice, use hard rubber, or vulcanite, for dental plates, and estimating the royalty at $75, we would have an annual tax on the profession of $450,000, and this when the patent is in litigation. How much will it be when Josiah Bacon has a decree of the Supreme Court of the United States sustaining the patent ?

The case of the Goodyear Dental Vulcanite Company *vs.* Benoni E. Gardiner has been selected by the dental profession as a test case, and, if successful, will relieve the profession from all future exactions.

On tho 6th of May, 1872, the hard rubber patent of Nelson Goodyear will expire by its own limitation, and thenceforth Bacon must rely solely upon the Cumming's patent to tax and drain the profession, and they must now present a united front, if they expect to succeed.

A short statement of the claim of Cummings for his letters patent, his mode of obtaining them. and the defenses now presented, will enable the reader to judge of the probability of success in this appeal.

Cummings claims that he is the original inventor of the application of hard rubber for dental plates, and his whole claim hangs on the truth of this assertion. He filed a caveat in 1852, in which he states that he has discovered such an application, and wants time to perfect his invention. He applied for a patent in 1856; it is rejected. He appeals to the Board of Examiners, who reject it, and the Commissioner affirms the rejection in February, 1856. He does nothing until in 1859, when he attempts to withdraw his application, which is refused, because it has been finally rejected, when he again lies still until 1864, when he makes a new application before a new Commissioner, and obtains a patent.

The defenses, all of which are proved in the Gardiner case, are many. We will give a few:

First. Cummings was not the first one to apply vulcanite to dentistry. Perhaps, if he had discovered a *new process* of applying this, he might have properly claimed a patent; but he claimed *no* process, merely the bare application of this substance as a basis for dental plates.

This application was the subject of letters to Dr. Truman, in England, in 1848, who, at the World's Fair, in London, 1857, received the highest medals for his plates, which were then eulogized by the Jury of Examination for their perfect workmanship and utility. In 1850, letters patent were granted in Paris. In the year 1851, Dr. De La Barre read a long article before the Academy of Sciences of France, giving the details of his method of using it. Dr. Evans had used it in Paris in 1848, and made several sets of teeth for Goodyear in 1851. As early as 1845 Dr. Berend, of Liverpool, was using it, and Dr. John Lovejoy was doing the same thing in New York city the same year. It was described in the various journals of Europe and the United States. Cummings claims in his cavant, in 1852, that he had just discovered his application, but has not perfected it, showing that he could not then do it himself.

Secondly. It was shown that Cummings himself did not make a dental plate even up to the date of his patent. He was obliged to obtain the plates he used in his application for a patent of one Robert Haering, Dr. Mallett, of New Haven, aud Wm. A. Bevens, a workman in Goodyear's shop, in New Haven.

Third. His original patent was for an application, and without disclosing any process to manufacture a plate. It is a familiar principle of patent law that a known article or substance, applied to a well-known manufacture or use, is not the subject of letters patent. It is not patentable to merely apply the known article to a new use; and this is all Cummings did in his first patent.

Accordingly in a few months he surrendered his patent, and obtained a re-issue, which, for the first time detailed any *process* by which such plate could be made, and now they are claiming that Cummings invented this *new process*.

Fourth. That this *process* was one well known to dentists as early as in 1856, and many were practicing it throughout the United States. In fact, Cummings was almost the only *one who* was not familiar with this process years prior to his letters patent.

Fifth. Had Cummings been the inventor and discoverer both of the application and this *process*, he clearly would not have abandoned it to the public. For eight years after the rejection of his application he allowed all the profession to use it, made no claim to any rights under it, but acquiesced, and announced to them that he had tried it and failed.

When the Hard Rubber Company sold licenses for the use of rubber, *he took a license* from them. When his assistant wished to use it in 1860 he could not teach him how to make it, and employed and paid a young man to instruct him in the art. Unquestionably the idea of getting the patent in 1864 had never occurred to him as late as 1862, and probably dates from his acquaintance with Josiah Bacon.

To claim that he did not abandon to the public necessities the proposition that he *could* not abandon it, as he did all he could to show such abandonment.

Sixth. The re-issue was a different invention from the original patent, which would render it void. If the first patent was merely for the application, and this was not patentable, then the re-issue could not be so by inserting in it a new and patented claim. A patent cannot be issued for an invention which the inventor has suffered to go into public use for two years; and he must apply for his patent within two years after making his invention. If his original invention of 1856 was for a *process*, then his re-issue of 1865 was practically a new invention, and had been sufficient to go into public use more than two years, and hence was void.

Seventh. Two other objections, technical in their nature, but fatal if well taken, are that the original company, the Dental Vulcanite Company, incorporated under the Massachusetts law, and the present company, the Goodyear Dental Vulcanite Company, incorporated under the New York manufacturing act, are each incorporated merely and solely for *manufacturing purposes*, and any business they attempt beyond those mentioned in this charter is *ultra viris*. Hence they would have no legal capacity to enter into the business of selling licenses to dentists; and the re-issued patent, which is the only one they now own, being issued to a corporation who had no capacity to receive it, is void. For, if the corporation cannot receive it, they cannot use it, or even sell it.

There are other points relied upon; but the above represent these most important, and either of which is believed to be fatal to the claims of the company and Bacon.

All the facts upon which the above are based were fully proved, and none were *contradicted.*

Unquestionably the fact of abandonment is the most palpable one, and, coupled with the refusal to call, or suffer to be called, Cummings as a witness, to prove by him his intention to claim his invention during the eight years abandonment, and his failure to deny his ignorance of the *process*, seems to leave the Supreme Court no option but to refuse Judge Clifford, and relieve the profession from this incubus."

Torsion.—In a letter to the *Missouri Dental Journal*, entitled "A few Days Among the European Dentists," Dr. E. A. Bogue, of New York, describes the following operation:

"At Mr. Sercombe's I was fortunate enough to witness a case of torsion, about which we have heard so much and seen so little that was favorable. In this case the patient, a little boy of twelve years or thereabouts, was anæsthetized by nitrous oxide, and one of the central incisors, which was about three-fourths erupted, in a position nearly at right angles with what it should have been, was operated on. This incisor was seized with a pair of fat-nosed pliers, armed with buckskin so as to prevent injury to the tooth, pressed strongly UP, and, while so pressed up, gradually rotated back and forth until the tooth was felt to yield in the socket, when it was slowly turned to a little beyond the position to which it was intended to occupy, and a retaining plate was placed in the mouth.

This retaining plate had been previously prepared by cutting the plaster tooth from a cast of the mouth, placing it in the desired position, and on that, vulcanizing the plate. This completed the operation; and I could not help a contrast most unfavorable to ourselves, as I recollected the long and tedious processes resorted to among us for the accomplishment of the same end, and the frequent ill success attending even them.

Remarking upon what might be hoped for in the future of this case, Mr. Sercombe kindly gave me an opportunity to see two other cases, one of which had been done about two years previously, and I was obliged to confess the success was most pleasing in every respect—pulps living, teeth in position, one of them affected by a slight recession of the gum, not noticeable except to the professional eye, but further than that no trace of what had been a marked deformity.

On a subsequent occasion, speaking with Mr. Tomes about the operation, he said that he knew of no cases in which the patients were young, where the pulps had been destroyed, or other perceptible injury had supervened, although they had treated quite a large number at the dental hospital within a few years past, and he thought if proper care were used there was no physiological reason against the operation."

Errata.—In Dr. C. R. E. Koch's article on "Dental Caries," in the February number of Journal, on page 439 fifth line from top, read "that which" in place of "that what," and on page 444 ninth line from bottom the word "blood" should be "food."

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ARTICLE I.

Class Address.

Delivered at the Thirty-second Annual Commencement of the Baltimore College of Dental Surgery. By T. H. Ferguson, a Graduate.

I have been selected by the members of the Graduating Class to represent them upon this occasion. As the recipient of this honor, I am deeply sensible of the task imposed upon me in appearing before this large assemblage, and therefore at the outset bespeak your kind indulgence.

The joy that we feel at meeting so many of you to-night, is tinged with sorrow, for on to-morrow's dawn we must sever our connection from a scene which may never again come within the range of our vision. We came her strangers among you, and were met with that kindness and hospitality which has ever been and will continue to be characteristic of a genial, warm-hearted Southern people. And now when our sojourn among you is ended, let me assure you that these acts of yours will not be forgotten, but will be indelibly written upon the book of our memory where every day will turn the leaf to read them. It may seem vanity and presumption on my part, but a knowledge of its genuine worth and importance to this community prompts me to congratulate the citizens of Baltimore on the possession of a College of Dental Surgery. The benefits to be derived from this and kindred institutions redound largely to the progress of the dental art, and to the happiness and physical comfort of this nation. Let there be no abatement in that interest which, by your presence here to-night, I know you feel; for under your fostering care and your liberal patronage this noble institution will ever rest as now, upon the flood tide of prosperity.

Gentlemen of the Faculty, yours has been an arduous task, but patiently and faithfully have you performed your respective duties. The zeal you have evinced in a good cause has been untiring, and the efficiency which you have shown as lecturers and demonstrators will find its reward, let us hope, in the satisfactory work of those who have availed themselves of your excellent instruction. With such a Faculty the attentive student cannot be lacking in all the requisite theoretical knowledge, and by the pursuance of a little more liberal policy, thereby securing a more extended public patronage, those essential qualifications which ensure success, will never be wanting to the student at the early stage of his professional career. This Dental College, of which you are the head and front, is the pioneer institution of the land. Its reputation is not hedged in by the confines of our own native soil, but has almost become a household word in other countries, and even the fair sex of foreign climes knock at its doors for admission. With such a world wide fame who can doubt there remains for it a glorious destiny? May its star never set, but ever remain lustrous as the high fame of that great man its founder, whose memory neither slab nor monument, nothing but heaven *itself* can cover.

We who go forth to enter upon the practice of a profession the groundwork of which you have taught us, will give you the largest place in our recollections of the present, not only for the principles you have inculcated, not only for the useful knowledge imparted, but for the uniform kindness and courtesy you have extended to each one of us;

those voluntary, exemplary acts which emanate only from true, large-hearted gentlemen.

Classmates, to you it remains for me to speak and my task is done. You have come here from the South and West for one common purpose; to lay the foundation of that knowledge on which your success in the profession you have adopted, depends. By your act of coming, and the purpose of your life exemplified in your studiousness and arduous labor of many months duration, as well as the crucial test of an examination to which you have been subjected as candidates for graduation, give unmistakable evidence to the world that you are fully alive to its stringent requirements and the difficulties attending the skilful practice of that profession; that you wisely chose to serve an apprenticeship at the work before grappling with the responsibilities which accompany all successful achievements in the dental art. It is not for us to disclaim the knowledge that there are some practitioners who have risen to the highest pinnacle of success and eminence, who were never within the walls of a dental institution; but we must not ignore the fact that the countless number of quacks—for their number is legion—which infest every community are likewise men who never saw and who never wished to see the interior of such an institution. While you find one self made individual, who, by long experience, patient study, and assiduous labor, has become noted as an eminent dentist, you will be thrown in competition with scores who neglected or cared not for the opportunities of college education, and entered upon their profession actuated solely by a love of gain and not by any desire to enoble the art of their selection. Such men are the bane of civilization, and their cheap work which so attracts the gullible is a stigma upon the profession and a curse upon a patronizing community. You to night have received your diplomas which entitle you to enter upon your chosen work, and to the recognition and encouragement of the profession. This is the most trying period of your life. You know the difficulties which environ you, the responsibilities which cluster around your pathway, as "thick as stars on the brow of night," and it requires all your fortitude of character and stability of purpose to enter upon the struggle. This is the period to form a resolution which is to govern your future exertions, now it is that you should map out your plan of future action. Let your aim in life be *success* in every undertaking, and to approximate, if you cannot reach, a standard of perfection in all you undertake.

To attain success you must *work*. Patient, unremitting labor, is the only agent through which you can reach its attainment. Genius is vouchsafed to but few, and what we call its brilliant scintillations are but the magnificent results of searching thought and unflagging toil.

Take a true record of the lives of great men who have lived; who seemed to their contemporaries the very embodiment of genius, and you will find that it was by the most sedulous labor that they acquired their greatness. The gifted Sheridan gained the greatest reputation among the men of his time as an impromptu wit and orator; but the biographer has shown that his brilliant sallies of wit and humor were prepared before hand, and through the tact of the great man conversation was shaped for their easy and fitting introduction. What was true of his dazzling wit in the social circle, applied with equal verity to his eloquence in the halls of government.

Alexander Hamilton once remarked in substance, "Men give me credit for the possession of talent and genius, but I have never accomplished anything yet, except by the most arduous labor."

With such examples before you, Classmates, you must not rely *wholly* upon your standing capital of genius for success in life. The first requisits to ensure success is to make oneself *known*. This has been done by social intercourse, by means of the daily paper, or by sundry other legitimate methods. There is a great prejudice on the part of old established dentists against the insertion of professional cards in the newspaper. They resorted to this practice themselves at the commencement of their career, and after they have grown rich and gray in service they see the error of early youth, and seek atonement for its commission, not by giving up their gains, the result of that early indiscretion, but by denouncing it as one of the unfair methods of making one's business known, which belongs exclusively to charlatanism.

That quacks resort to advertising columns largely it is not for me to deny, but it is folly to maintain that they alone have such recourse. It is legitimate, for it aids in a good work by promoting the welfare of the newspaper. All trades or professions are mutually dependent on each other, and each must render its assistance to the other to ensure their several and common prosperity. Therefore do not let the daily paper go down and your business go up, because you entertain a prejudice against the laudable practice of contributing to the support of that paper. They tell us ability and merit will always make their way regardless of surrounding circumstances. Believe it not. Such thoughts are antediluvian. These admirable qualities did once upon a time find a fitting reward in an appreciative public, *but it is not so now*. *Now* cheek is the autocrat of the day. Cheek is at the front and carries away the golden honors, while modest merit in the background sits "like patience on a monument," and quietly looks on.

Gentlemen go in to win. Let *success* be your motto. Emblazon it upon your banner which you unfurl to the public gaze, and be sure you keep at least one eye always upon it. If people cannot see your modest door-plate, rear a sign colossal in its proportions, and if still the public eye is blind to things aloft and remains solidly fixed upon the bricks beneath, *then* plant a marble tooth in front of your office door and success is inevitable—your fortune is made.

Our emotional natures are strirred by a two-fold influence to-night. Joy and sorrow are ultimately blended and ac h is battling for supremacy on this occasion which precedes the morrow of our separation. We are glad that the time draws near which is to mark our welcome home. Already we think we feel the imprint of a fond sister's kiss, we receive a mother's prayerful welcome, a father's cordial greeting.

But the home picture is withdrawn and another held up to our view in the scene before us. Here we have our friends in Baltimore, our Professors and each other. Strangers at our first meeting, but as time grew apace, by a common pursuit thrown in daily, almost hourly contact, our friendships have strengthened, and our hearts grow sad as the hour approaches which is to point the moment of our departure. Let our frindships here which we have formed among ourselves and among our acquaintances ever be cherished as the fondest recollections of our college career.

With these few, brief words, Ladies and Gentlemen, Gentlemen of the Faculty, Classmates, one, *all*! I bid you an earnest, an affectionate *farewell!*

ARTICLE II

The Use (not abuse) of Nitrous Oxide.

BY ARTHUR C. FORD, D.D.S., ATLANTA, GA.

Our personal and esteemed friend, Dr. S. J. Cobb, of Nashville, contributed an article to the February number of your Journal, entitled "A Naughty Case," in which we think he makes some broad and *Naughty* observations with regard to the use of Nitrous Oxide, and quotes our distinguished and honored fellow practitioner, Prof. S. P. Cutler, of New Orleans, as an authority who abets him in his opinion that said Nitrous Oxide is a "great humbug," and ought to be entirely eschewed by our profession. We beg to join issue with the doctor as to the propriety of entertaining this proposition of abolition; and while we condemn the abuse of this "Gas," and particularly for the wholesale extraction of teeth by men who, we blush to acknowledge, are called dentists, yet we have seen a large number of cases where the administration of an anæsthetic was not only expedient but absolutely necessary, and where the judicious administration of Nitrous Oxide, was, in our opinion, for many reasons much to be preferred to the employment of any of its cotemporaries. All persons, it is well known, are not constituted alike, and though *we* may be able to tolerate the pain of extraction, yet we must not, and indeed need not, expect to find every person endowed with the same fortitude as ourselves, and frequently where we find extraction imperative, we must be prepared by some means to extend to our patients immunity from pain or give them "Dutch courage," and we think it preferable to resort to Gas than to alcoholic stimulants, as frequently was the case in years gone by, and indeed still is in places where Gas is inaccessible. Nitrous Oxide is, we believe, the most convenient anæsthetic for dental purposes, and when carefully generated, and administered with judgment, decidedly the most harmless; we do not say there is *no* danger in its administration, but after five years experience with it we can say, with a clear conscience, that we have never yet "extracted the wrong tooth, crazed our patient, or sent him to his long home," nor do we know of a solitary case wherein one of our patients received the least injury from its use. The only objection we have to Gas is, not its danger, but that it is too much trouble to the operator, that is to a practitioner of dentistry—we do refer to those Colton Institutes where its administration is made a specialty—and for this reason we endeavored at one time to do away with our Gasometer, but our patients were so clamorous for its assistance that we were obliged to resume operations; we would say in passing that it is far from being a paying institution with us, we keep it solely for the accomodation of our patrons. The mere fact that there have been some unfortunate results attending the administration of this anæsthetic, I believe *hardly one in one hundred thousand*, a very small proportion, is no argument against its use; if it is, it is also effective against many other necessaries and conveniences, viz: people ought not travel by rail, stage coach, horseback, steam boat, etc. etc., *ad infinitum;* why? Because so many have lost their lives by so doing.

Many persons have died under the hands of the surgeon, whilst anæsthetics were employed, and sometimes even in minor cases of surgery; are we to insist therefore, that, all men hereafter *must* suffer under the knife, and not be permitted to take advantage of these annihilators of pain, the parties interested being willing to run the risk of a fatal termination, dreading the operation as much as death itself? Why the very idea is absurd, untenable, and would be hooted at by three-fourths of mankind. Anæsthetics have become necessaries to civilized man, and so will continue until some less dangerous and equally efficatious method is discovered. A small body of men cannot successfully combat the popular will in such matters.

To illustrate the necessity of applying to the *use* of Gas occasionally, we will relate a case in practice we had a few days ago.

A lady applied to us to have the roots of the right second inferior molar removed. They were very much ulcerated. and there was a fistulous opening a little forward of the angle of the ramus, that had been discharging for about a year. In addition to her being remarkably nervous, she labored under the additional disadvantage of a deformity or peculiar formation, that precluded the possibility of her opening her mouth sufficiently wide to admit of any instrument, capable of removing the roots; moreover, said roots were so sore she would not permit of their being touched, The crown had been broken off by a country dentist, while endeavoring to extract the tooth, he not having control of his forceps on account of this inability to open the mouth.

We administered the Gas and by the assistance of a wooden wedge of soft pine, forced the mouth open sufficiently, the muscles being somewhat relaxed, to admit of a small pair of forceps, and removed the offending roots. The patient recovered in a few minutes and if Dr. C. could have beheld her joy, relief and thankfulness, we think he would have acknowledged that Nitrous Oxide was not "a great humbug." If Gas had not been used, a resort to some other anæsthetic would have been absolutely needful. The lady's brother-in-law is a physician, and being present, concurred with me that the recourse to some such agent was imperative.

Now the "*Naughty*" part of the doctor's article, we consider consists in the extreme view he takes against anæsthetics in general, and Nitrous Oxide in particular, as applicable to our speciality in surgery. We have ever found that there is a "medium in all things;" everything in this world has its use, it is only the abuse of an article that causes it to be pernicious. The doctor also lays great stress upon "truth." In this we coincide with him and believe that "truth is omnipotent," etc., and would here endeavor to impress upon him the *truth* of the old adage that "extremes are dangerous," and would therefore recommend him to leave the ranks of the extremists, those who advocate too boldly, and also those who abuse too roundly any "person, place or thing," and get into the middle of the stream with the "middle men," and he will be apt to find with them both truth and "Mr. Grant's" electioneering countersign "peace."

ARTICLE III.

Reply to the Rubber Company's Chemical Advocate.

BY J. R. WALKER, D.D.S., NEW ORLEANS, LA.

EDITOR *American Journal of Dental Science:*—Some time ago, an article on the injurious effects of "Vulcanite Plates," appeared in the "American Chemist," from F. W. Clark, S. B., who claims to have been lecturing in the Boston Dental College.

As the positions taken, and statements made, vary so widely from known facts, and the article is so well calculated to mislead suffering humanity on the one hand, and to furnish an excuse to ignorant or unprincipled operators, on the other, I intended to reply through the "Chemist;" but as lack of time prevented my sending the reply at the proper time, and it has since appeared in your editorial department, I will reply, by your leave, through the same medium, and thus apply the antidote where the poison has gone.

In regard to the implied claim of the author, to be in possession of "what little is known on the subject," I will ask what likelihood there is, of a professional chemist having access to a sufficient number of persons wearing rubber plates, and examining them with sufficient care, to know anything about it practically, and especially to negative the assertions of those who *have seen* and *do know* of the fearful ravages of the *rubber disease*, which has become so common, that to report the cases, would occupy all the space of all the journals.

His claim, that the question is not settled, has no better foundation than, that the rubber advocates try to divert attention from the investigation of the rubber disease, by claiming that, "other plates make sore mouths."

He says, "again, thousands of Vulcanite plates are worn, and the cases of injury are comparatively rare." Now, sir, any one who has given honest, intelligent and close observation to this subject, knows the facts to be directly the reverse.

It is only *painful sore mouths* that are *rare*, while the injury is *universal*. I have seen the roof of the mouth so diseased as to present the appearance of a piece of half-decayed beef, cut across the grain; or, lines of inflammation extending to the throat, and there producing stomato-gastric derangement, causing nausea, loss of appetite, loss of flesh, and general debility; and all this without the cause being suspected by the sufferer, simply because there was no pain *under the plate.*

His other statements are equally erroneous and unfounded, and it would seem that a man, claiming to be a chemist, and making such wild assertions, must have unbounded confidence, either in his own invulnerability, or in general stupidity.

I confess to some difficulty in handling with patience an article, which, like the substance it endeavors to uphold, is brimful of poison, and which bears so plainly, the earmarks of the unprincipled rubber company.

The mechanical mixing of the sulphide with the rubber does not prevent its being dissolved in, and acting upon, the fluids of the mouth; and being thus mixed with all the nutriment, it permeates and poisons every fibre of the body, and this in such an insidious manner, and to the *superficial observer* with so little *apparent mouth disease*, that frequently constitutions are undermined and destroyed, and sometimes death ensues, before the real cause is ascertained.

It is true that the effect varies in different cases, owing to diosyncrasies, habits, etc., but among hundreds of cases of those wearing rubber plates, examined in the last three years, I have not found one free from the specific rubber disease in one form or another.

It is known to physicians, and should be to everybody, that the mucous membrane of the mouth is five times as sensitive to the action of drugs, as any other membrane of the body, and that the entire system can be more readily acted upon through that, than any other medium.

The red sulphide of mercury forming one third of the Vulcanite Plate, being in contact with this sensitive membrane, produces in *many* cases severe sore mouth, and in ALL CASES it *poisons* the *secretions*, and thus permeating the *entire system*, it deranges *all nutrition*, and attacks any weak point as of the throat, *lungs*, stomach, liver, etc.

To say that such a *poison*, under such circumstances, ought, *theoretically*, to be *inactive*, is as *absurd* as the assertion that it is practically so, is FALSE.

ARTICLE IV.

Eastern Ohio Dental Association.

BY DR. D. B. MCLAIN, Secretary.

The second semi-annual meeting of this Association was convened in Alliance, February 27th, 1872, at 1 o'clock, P. M., by the President, Dr. J. C. Whinery, of Salem, who invited the Rev. Mr. Wolf, of Alliance, to open with prayer. Members present, Whinery, Lyder, McLain, Douds, Siddal, Porter, Hole and Hisey.

The Treasurer reported having in his hands $7.80.

Dr. J. M. Porter, of Massillon, read a very able and elaborate essay on anæsthesia and respiration.

Dr. J. W. Lyder, of Alliance, read an essay on Dental Association and its benefits, pointing to the great advance made through the influence of dental associations and alluding to the damaging influence on the profession of those men who do not believe in association or who attend one meeting for pecuniary motives only, in order to class themselves as members in good standing. On motion, these views were adopted as the sentiment of the Association.

Dr. Siddal gave his method of producing anæsthesia, using chloroform and ether.

Dr. Whinery addressed the association on anæsthesia.

Dr. Lyder briefly deprecated the, in many cases, low fees for administering anæsthetics, taking into consideration the great danger always attendant.

Dr. Siddal delivered an oration on the rise and progress of the dental profession, and laudatory of the shining lights of past days.

On motion, a cordial invitation was given to members of the medical profession to participate in the discussions.

On the subject, "When is Extraction Indicated," Dr. Douds, of Canton, always extracts the second bicuspid, in case the cuspid is crowded out of the arch, provided, that it is necessary to extract and the first bicuspid is sound. As from observation he thinks the first bicuspid less subject to decay.

Dr. McLain reported cases where he had successfully treated excessive deformity of the mouth from protrusion of cuspids, the central and lateral incisors touching, by extracting the first bicuspids, preferring them on account of being able to bring the cuspids in place with less disturbance than by extracting any other tooth. If there was not room sufficient, procure it by plates or wedging, or both, using rubber ligatures in most cases to move the teeth.

Dr. Porter deprecated in strong terms the wholesale extraction of slightly diseased teeth and roots, claiming that in the maiority of cases they can be returned to health by judicious treatment.

Dr. Lyder reported a case, where a superior lateral incisor perfectly sound, closing inside the arch had received such injuries from unnatural occlusion as to cause alveolar abscess, the root being almost as black as jet when extracted.

Dr. McLain reported a case where a lady, aged 45, after the extraction of the entire upper denture, erupted a molar near the mesial, line about six line sposterior to the natural position of the right lateral, the side of the tooth presenting to the mouth, the crown in front, and a bicuspid in the natural position.

Also a case where one of three sisters had an entire denture extracted, and the other two the upper denture, all the teeth dead, not one decayed, but being a continual source of inflammation and ulceration; many of the roots were necrosed. The first sister had lost her hearing. A depraved condition of the general was present system in all three.

Dr. Whinery reported several cases of complicated disease of maxillary sinus, treated successfully with dil. chlor. zinc and dil. carbolic acid, alternately.

On motion, the next place and time of meeting was appointed at Salem, August 29th, 1872, at 10 A. M.

A committee consisting of Drs. Coffee, Douds, and Hisey, were appointed to nominate delegates to the American Dental Convention. They selected Drs. Porter of Masillon, Whinery, of Salem, and McLain, of New Lisbon, who were thereupon elected by the Association.

The Chair appointed as essayists for the next meeting Drs. Porter and Douds. Subjects for discussion, "The Proper Treatment and Filling of Diseased Teeth and Roots," "Dental Ethics," "Specialties in Dentistry."

The following resolution by Dr. Whinery was adopted:

Resolved, That this Association heartily endorse the action of the State Dental Association in appointing a committee to defend the dentists of the State against the demands of the Dental Vulcanite Company under the Cumming's patent.

After thanking the Masonic Order for the use of their hall, the Association adjourned.

ARTICLE V.

Extracts from an Address.

Delivered at the Commencement Exercises of the Dental Department in Harvard University, February 14, 1872.

BY OLIVER W. HOLMES, M. D.

* * * * A few generalities are all that can be attempted in a discourse like this; enough to give some little idea of what the dental profession has grown out of and what it has grown to; a few hints to make us feel more keenly its importance; a picture or two of old superstitions and fancies and barbarisms to contrast with the enlightened knowledge of our own time; a brief mention of some of the leading modern improvements in the scientific and practical departments relating to the teeth; an explanation of the causes which have kept the dental profession from receiving the recognition it has a right to claim, and a vindication of its title to the regard of the community and to a fair representation of its teachings at the great seats of learning. I mention some of the points I shall touch upon rather than

discuss, not under formal headings and with strict adhesion to the order in which I mentioned them, but as they appear to present themselves most naturally.

The great difficulty in handling the subject is the extent of its literature, and the infinite detail of ingenuity which has gone to the bringing about of the perfection of its mechanical processes. The value of the teeth to the human family is so prodigious that so soon as attention was fairly turned to their proper management and the methods of repairing their losses, inventive talent precipitated itself, so to speak, upon the new department of human industry. There is no pearl in any royal crown for which a young queen would give one of her front incisors. And those who know what a perfect organ each one of the teeth is, as shown by the more recent revelations of minute anatomy; what pains nature has taken with its complex organization, will not wonder at the estimate set upon it.

The teeth, in their relation to the beauty of the human countenance, have figured in poetry from the earliest times. "Thy teeth are like a flock of sheep that are even shorn which came up from the washing: whereof every one bear twins and none is barren among them," says the imaginative author of the song of songs. Their whiteness has been compared to that of snow, of Parian marble and of pearls until verse is tired of the images. The ancient poets and satirists are full of allusions to the beauty and deformity depending on the conditions of the teeth. The ladies who made it their business to please, on Bentham's principle of procuring the greatest happiness of the greatest number, had recourse to every kind of artifice to disguise their defects and commend their charms. Here is one of these tricks as given by Athenæus, in a passage not cited by Duval in his large collection of classical quotations relating to this subject. I give a part of it in English.

"They whose teeth are elegant force themselves to smile even against their inclination, so that the beauty of their mouths may be seen by their visitors. But if their smile is not so pleasant a sight, they hold a sprig of myrtle in their mouths so that it will cover their teeth when they open their lips on purpose or otherwise."

As for the unfortunates whose teeth were discolored or had suffered some of the common changes that age brings about, the satirists scoffed at them in such course language that their phrases are quite unbearable to modern ears. Even such a personal remark as that of the graceful Catullus would be considered inadmissible in our time—"Your mouth is full of teeth half a yard long and your gums are like an old wagon-box." The first circumstance—the seeming inordinate length of the teeth—is a well-known effect of age, which produces a shrinking of the gums. The Frenchmen talk of *dents dechaussees*, unshod teeth, and I remember that Thackery, in one of his stories, speaks of certain ladies, not very young ones, as "long in the tooth," among other by no means flattering peculiarities.

We have grown more civil than the Romans, but we know the beauty of a fine set of teeth and the deformity of its opposite as well as they did. It is true that men can often conceal the imperfection of their dental arrangements by letting the eaves of a heavy moustache overshadow their mouths. But to women, to hide whose smile would be to take away half the sunshine of life, and to whom nature has kindly refused the growth that would deprive us of it, there is no element of her wondrous beauty that can take the place of white, even, well-shaped teeth. And as beauty is not a mere plaything, but a great force, like gravity or electricity, the art which keeps it, mends it and to some extent makes it, is of corresponding importance.

But we must add to this the consideration that speech is so largely dependent on the perfection of the teeth that our language, we might almost say, loses a letter with every tooth that falls. What can be more painful to witness than the effort of a hapless friend to bite his consonants out of the alphabet when he is reduced to the condition of an infant, whose boneless gums are unfit for any task but the caressing pressure of the maternal mouthful?

And then the humbler but still necessary function of mastication—how much depends on the ease and perfection with which this is performed? You can tell the state of a village by going to the mill. If it has enough to grind, and grinds it well and cheaply, you will find good farms and well fed people. So if you see a good square jaw filled with good sound teeth, and moved by ten muscles that mean business and do it, you will find in all probability that they nourish a sound frame in man or woman. I have never forgotten the complaint of poor Walter Savage Landor—a sadder one than any of the Preacher's, it seems to me. I quote it from memory. "I have lost my mind," he said; "that I do not care so much about, but I have lost my teeth, and I cannot eat." It has been my custom for many years when lecturing upon this part of anatomy, to bring forward the skull of a large turtle, in order that its jaws might be compared with those of the human being in very advanced years. The sharpened edges of the alveolar border in the old man show the retrograde process by which he returns to the quasi-embryonic condition, reminding us of that earlier period when he passed through the scale of being upward, to reach the supremacy of which age is constantly striving to deprive him.

It is no wonder, then, that the teeth have been particular objects of attention from the earliest period. The Egyptians, who made specialties of everything, had professional dentists, and it is asserted that artificial teeth of ivory or wood, some of them on gold plates, have been found in the jaws of mummies. The teeth of mummies are said also to have been found filled with gold. I do not find any distinct notice of a dental profession from the time of the Egyptians to that of Galen. You will permit me to quote, in the original, a passage which I have unearthed in one of his treatises, because it makes use of an adjective which will be found in our catalogues and diplomas, where it was admitted after some discussion:

Omnes tamen istos communi nomine medicos appellant, perinde ut eos, puto, qui a quibusdam membris, quorum præcipue curam gerunt, vocitantur: hos nanque ocularios, auricularios, DENTARIOS (ita dicere liceat) medicos nominant.

It is a long interval from Galen to the middle of the 17th century. But I have not found any other traces of a special dental profession, until I came upon the following, which looks very much as if it referred to such specialties. In the dairy of the Rev. John Ward, Vicar of Stratford-on-Avon, from 1648 to 1679—the book rendered famous by a reminiscence of Shakspeare, for which the poet would not have thanked him—is the following:

"Uppon a signe about Fleet Bridge this is written—

'Here lives Peter de la Roch and George Goslin, both which, and no other, are sworn operators to the King's teeth."

Whether these operators had any other calling that this august office does not appear. Early in the next century the practice of dentistry seems te have been in the hands of silversmiths and jewelers. I think many of us can recall the name of a fellow-citizen, originally, I think, a watchmaker, who branched off without any special training into the business of a dentist, and who acquired a considerable name for filling teeth with skill and success, taking time enough about it, and receiving very handsome pay for his services.

Dentistry as a profession may be safely said to have come into existence during the present century. In this country its growth has been of wonderful rapidity. One would have thought that Cadmus had sown a new furrow full of teeth and that they had sprung up dentists. In 1820, it has been computed that there were not more than a hundred dentists in the United States. In 1858 there were four thousand. I presume they have increased in as rapid a ratio since that time, and in the meanwhile works on denistry, journals devoted to it, institution for teaching it, have become so numerous that it is recognized as one of the great callings of life.

If we would know what we have gained by the elevation of dentistry into an honorable special calling, we must go back to the time when ignorance, superstition and bungling awkwardness reigned over the whole province of art, now so fully illuminated by science, and in which such admirable mechanical skill has developed itself in every form to relieve suffering, to supply deficiencies, to add in all possible ways to comfort and comeliness.

It is simply amusing to look back two or three centuries and see what men were capable of believing. You will find in Ambrose Paré various forms of words in use in his time to cure the toothache. The notion that this pain was caused by a worm, which Shakspeare refers to, is at least as old as Avicenda. Strange significance was attached to an anomoly which an old friend of mine told me happened in his own person, I mean the same fact that Richard the Third boasts of, namely, that he was born with teeth. A girl was born at Picentum, with six teeth, says Polydore Virgil; and at that time the Turks began to capture our towns far and wide. But nothing quite equals the story of the miller's little son, whose second molar on the left hand side of the lower jaw was a gold one, as good, they said, as if a goldsmith had made it. Some pretended having seen the letters C S C legibly inscribed upon it. I have before me a most exact statement of the facts of the case, authenticated by a number of eminently respectable personages. And I find in Haller's Bibliotheca Anatomica various notices of the storm of controversy excited by the story of this Silesian boy with the golden tooth. "What it portends," says Laurence Scholtzius, "I do not hesitate to declare is known to God alone." It is to this most famous case that Sir Thomas Brown refers when he says, speaking of the portended difference of posture in which drowned men and women float, "But hereof we cease to discourse, lest we undertake to afford a reason of the golden tooth, that is, to invent or assign a cause, when we remain unsatisfied or unassured of the event." And in the margin, "Of the cause whereof much dispute was made and at last proved an imposture." All this was a good while ago, but I am myself old enough to remember several curious notions about the teeth which had a considerable currency and came near enough to being believed to be told pretty seriously. If one had a tooth extracted, it must be burned, because if a dog got it and swallowed it one would have a dog's tooth come in its place. I recollect a story told me of a somewhat noted public character whose smile or other attractions had made him dangerous to the sex formerly called the weaker one, a personage too well known to the scandal of his time, who was said to have had his teeth, or some of them, extracted and replaced by those of a living animal—a calf or a sheep. This story was told seriously, and the hero of it I have seen with my own eyes, when age had disarmed him of the fatal fascinations of his earlier days. There is a common notion enough still prevalent that some persons have a complete set of double teeth, as they are called; a jaw full of molars. I never saw one, and I doubt if anybody ever did; but the teeth of Indians and sailors, ground down by the attrition of hard grains or sea biscuit, might be mistaken for such a mal-formation.

It is only since the year 1855, that the anatomy of the teeth, out of which necessarily arose new views of their physiology and pathology, can be said to have been fairly understood. It is true that old Leeuwenhoeck had described the "pipes," as he called them, of the dentine so long ago as the year 1678, but his discoveries were so much ahead of his time that they had to wait some generations, like the seven sleepers, before they woke up to find themselves confirmed. An article in the *British and Foreign Medical Review* for the year 1839, brought before the profession in England and America, in a connected way and with illustrative figures, a series of discoveries which had changed the whole aspect of dental anatomy. We owe all these discoveries or re-discoveries to the invention of the achromatic microscope, which enables any of us to show the student the beautiful intricate structure of the teeth as plainly as he can see the anatomy of the skeleton with the naked eye. We have all studied the exquisite tubular arrangement of the dentine, have speculated on the nature of the contents of the tubes, first demonstrated by Owen in the elephant, have examined the prisms of the enamel, and the stellate cells of the cementum; you have seen the vascular systems of the pulp and around the fang and how they run into each other; the tooth is for you a delicately organized, living structure, carrying on nutritive functions through the greater portion of its substance, and capable to a certain extent of repairing its injuries. To those who studied Bell's or Meckel's Anatomy, who read the works of Hunter or Fox on the teeth, all this is a revelation, which only those can fully appreciate who were born in the benighted days of dental heathenism.

While the scientific basis of dental art has made these great advances in modern days, the practice of the art itself has undergone the most wonderful transformation. The work of filling teeth has been carried to such perfection that not only is decay arrested and a tooth which seemed destined to rapid destruction so repaired that it will last a lifetime, but where the greater portion of a tooth was gone, it has been built up, so that the miracle of the boy of Silesia is wrought every day by mortal hands, and we see a golden tooth in a living mouth without fearing an invasion of the Turks, or a war with England. I suppose that the improvements in this particular department of dentistry, the invention and perfecting of mineral teeth, their insertion on plates retained by atmospheric pressure, the substitution of the improved forceps for the clavis, and the application of anæsthesia to extraction, would be considered the greatest achievements of modern dentistry.

What a change since the time when teeth were allowed to decay as if they were not worth the gold it took to fill them. What a change from the time of those ghastly *rateliers*, as the French call them, carved in ivory and supported by springs that creaked with every motion of the jaws like the thoroughbrace of an old-fashioned stage-coach. Could anything be less inviting to social intercourse, could anything be more appalling to tender infancy than the sight of those dancing sets of artificial teeth, looking as if they were ready to jump from their owner's mouths and fasten upon one, as they used to say a turtle's head would do after it was cut off? Mr. Greenwood, of New York, you may remember, carved a set for the Father of his Country, and one can hardly fail to see how the flattened and compressed lips were in a perpetual struggle with those loose fitting arches and rebellious spirals. Yet this was considered a master-piece of dental workmanship, and I have no doubt that pilgrimages have been made to Mount Vernon by artificers in that line of business who left with a tear in one eye at the sight of Washington's majestic countenance, and a twinkle of satisfaction in the other at the triumph achieved by Mr. Greenwood.

Contrast this state of things with the manufacture of artificial mineral teeth as carried on in this country, where it has been brought to its greatest perfection. More than ten years ago, there were nine factories engaged in their fabrication and more than two million teeth were made in a year. To-day I suppose they must be made and sold by the bushel like the cereal grains, and if the great factories required elevators to handle their products it would hardly surprise us. Compare the delicately tinted, exquisitely shaped porcelain incisors with those frightful ivory palisades that used to play up and down like a portcullis in a manner to terrify all beholders. In fact, the perfection of artificial teeth is carried almost too far. They have come to be for the inside of the head what the wig was for its outside in the days of our ancestors. It was so much more convenient to have a head of hair that one could whisk on and off in a moment, one that never grew gray, one that was just the shade the owner fancied, that was always in curl, that could be laid aside in hot weather to let the cool breeze play over the naked scalp, a luxury which Adam never knew in Paradise, and coming about as near to "sitting in one's bones" as is practicable while we are in the flesh; all this was so much more convenient and comfortable than the arrangement provided by nature, that the wig reigned undisputed for generations, and will, not very improbably, return to bless mankind before our children's children are bald and gray. So with the artificial teeth of this dental millennium in which it is our good fortune to live. They are comely, they never ache, they are contented with their situation and keep their place, which is more than we can say of most of our living servants; they undergo no changes in the mouth, they admit of the nicest personal proprieties, they serve perfectly for articulation, and, though one can hardly crack a peach-stone with them, as some can with their native molars, or use them for biting off the heads of iron nails, as used to be told of Ethan Allen, they can do good service in the respectable and responsible duties of mastication. The consequence of all this is that people are only too ready to have their natural teeth shelled from their gums like so many grains of Indian corn from the cob, and a complete mouthful of artificial make inserted in their place. You miss your friend for a little time—he is in his chamber with his jaws tied up, perusing Zimmermann on Solitude for a few day—suffering from toothache is the figurative language in which his condition is announced. When he returns to society he has recovered his youth, like Æson in the hands of Medea, and his smile is a glittering welcome, a mineral benediction which it is a joy forever to be blest with. Think again what that preliminary process of edentation would have been in the days when the rustic patient complained that he had to pay as much as his neighbor who had been dragged three times round the room before the tooth came out. There never was a claw on bird or beast that was the cause of such anguish of apprehension, such howls of agony as that diabolical instrument, looking like a vulture's talon, but known by the name of "the key." It was a key indeed; it may have opened the door of heaven to the sufferer in due time, but while the bolt was turning the victim thought he was in that other place, where the man must be who invented the instrument of torture. *Now* a patient comes in, takes a few whiffs of an anæsthetic, has a dozen or more teeth submitted to the embrace of the gentlemanly forceps, which lifts them from their sockets as one takes out the pegs of a solitaire-board; say rather, as a father lifts his first-born infant; comes to; stares about him; asks when they are going to begin; is told that it is all over; bursts into tears of hysteric gratitude, kisses the smiling dentist, wants to hug all mankind and make the human race happy at once, sobers down presently, ties up his face, and takes to retirement and Zimmermann for a season, as before mentioned.

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The use of the mallet in filling teeth, every blow of which instrument is a fractional knock on the head to the patient equal to about one hundredth of that which a slayer of cattle gives to a full grown ox to finish him, but which being taken in divided doses allows the sufferer to escape with life. The use of the mallet, automatic or other, far from agreeable as it is, is considered a vast accession to the art of dentistry. "Every man must be anvil or sledge," says Goethe, and it is quite plain that our friends, the dentists have settled it so far as they and we are concerned.

Nothing has excited my admiration more than the wonderful drills moved by the foot or other power which may be preferred, finding their way into every corner of the mouth with a sinuous grace of movement such as the serpent displayed for the facination of our unfortunate first parent, and making their way into the solid dental substance with a rapidity from which the engineers of the Hoosac tunnel might borrow a most significant lesson.

The employment of sponge gold for certain purposes, and the use of heat to develop the cohesive properties of the metal, have enabled the dentist to perform those remarkable feats of building up a tooth from its ruins to which I have before referred.

The public seem hardly to appreciate the great value of the cement filling; both the oxide of zinc and the gutta percha, either of which is capable of preserving for long use a tooth too infirm to bear filling with gold.

I learn that even exposed pulps may be protected by artificial means, and thus a tooth saved as a living organ from an almost hopeless condition.

Important as are these mechanical inventions, the growth of dental associations, educational institutions, and journals, mark a still more general advance of the profession. * * *

The picture of old age drawn in Ecclesiastes is wonderfully impressive, all the more so in consequence of the obscurity of some of its images. But we all know what the Preacher means when he speaks of the drawing nigh of the years when we shall say there is no pleasure in them, and of the day when the grinders shall cease because they are few, and those that look out of the window shall be darkened. There were no dentists in those days to rejuvenate the old man with a third dentition. There were no opticians to supply his vision with the second eyes of old age. The aged people seem to have been in a most forlorn condition at a time when the men of to-day not rarely have a good deal of vitality left and enjoy life and help to make others enjoy it. To us who remember the late Josiah Quincy and Dr. James Jackson, long after they were eighty years old, who knew something by report of lord Lyndhurst and lord Brougham in their later years, it seems strange to hear Barzillai say to king David, "I am this day four score years old: and can I discern between good and evil? can thy servant taste what I eat or what I drink? can I hear the voice of singing men and singing women?"

But what would old age be to a great number of persons without the aid of the dentist and the optician? The worn-out laboring man, unused to books and with limited capac-

ity for social intercourse, may get along well enough perhaps with his pipe and his seat in the sunshine or by the fireside. Father Abraham may not have felt the need of spectacles; he went to bed early, no doubt; their was no daily newspaper to read, and he did not shave. But what would become of the scholar, or of persons of any cultivation in our days who at fifty or sixty should find themselves cut off from reading, and not improbably rendered unrepresentable, or at least miserably uncomfortably, in society in consequence of imperfect articulation? The care of the eyes is therefore recognized as one of the most important specialties in medicine, and the study of opthalmology has engaged some of the most distinguished professional talent in this country as in Europe. The province of dentistry is only second in importance to the other domain of medical science and art, and rivals it in the intelligence and activity of those who teach and practice it. In one respect it is of greater public interest than the other branch; most children's and young person's teeth require positive attention, whereas their eyes in the great majority of cases take tolerable care of themselves. I think there are twelve times as many dentists in this city as there are oculists. If every one had twenty eyes in the earlier part of his life, and thirty-two when full grown, the numbers of oculists and dentists might be more equal. * * * * *
—*Boston Medical and Surgical Journal.*

SELECTED ARTICLES.

ARTICLE VI.

Destroying Nerves.

BY W. H. SHADOAN, D. D. S.

This operation is condemned by a few operators, as wholly unnecessary. We will agree that many nerves are destroyed that should have been preserved, but there are cases in which I do not attempt to save pulps.

The question under consideration is not when a pulp should or should not be destroyed, but the easiest way of destroying it and causing the least pain to the patient.

Preparation of Case.—The nerve should in all cases be laid bare before the application is made, otherwise there is a liability of great pain for a time at least. It is not always that the patient can bear the pain of the operation; when this is so, the application of chloroform for a short time, or creasote and tincture of aconite will obtund the sensibility until the excavation can be completed.

If the tooth to be operated on has but a single root, the point of exposure need not be so large—half a line in diameter will do; but if it is a molar, then always make the orifice of exposure as large as possible, a full line in diameter, if circumstances will permit. Wound the pulp, if possible, before its excavation. A drop of blood from the nerve of a tooth depletes it sufficiently to allow of its destruction with rarely ever any pain, and after all, that is just what is desirable.

Material Used.—I invariably use *arsenious acid* and *carbolic acid* without sulphate or the acetate of morphia. I once used a paste of arsenous acid and sulph morphia, and in nine cases out of ten there was great pain for a considerable time, hence its total abandonment. Now I use only arsenic and carbolic acid.

Method of Application.—It matters very little where the application is to be made; whether in an incisor tooth or a third molar, the tooth should be invested with a napkin; dry out the cavity thoroughly with punk, or softly rolled bibulous paper, and with carbolic acid wet the pulp and surrounding portion of the dentine; then the arsenic is applied on the point of a small bit of cotton rolled between the fingers until it is quite firm about a line in diameter, and as long as necessary. (For a front tooth a quarter of an inch, and for a back tooth a half of an inch long, will be required.) This is taken up with the plugging pliers, and dipped into the solution of acid, and the point touched to the dry pulverized arsenic, when a sufficient amount will adhere to the cotton, which is carried directly to the point intended. In this way the application may be made directly on the point of exposure, and never allowed to come in contact with the gum or lip of the patient. A piece of cotton laid on the arsenic loosely is all that is needed to complete the operation. I never leave the cotton used to carry the arsenic to the nerve in the tooth, unless it be a molar, and seldom then. The arsenic should be removed within twenty-four hours, when generally the nerve is sufficiently obtunded to be removed, though frequently the pulp may remain for a few days without molestation, when it can more easily be removed.—*Dental Register.*

ARTICLE VII.

Cleft Palate.

In this case, admitted into King's College Hospital, there was a fissure of the whole of the soft and two-thirds of the hard palate in a young person. Sir W. Fergusson performed the operation upon the soft palate in the manner which he himself first proposed, dividing the muscles of the soft palate previous to paring the edges of the cleft. Chloroform was administered, and a new form of gag used, which consisted of two grooved plates to fit the teeth of the upper and lower jaws, connected by a horse-shoe-shaped spring; this being placed on the teeth of one side of the mouth, was quite out of the way of the operator during his manipulations. Four sutures were employed to bring the edges of the soft palate accurately into apposition. The sutures were passed in the ordinary way; but an excellent plan is adopted by Sir W. Fergusson, who, to facilitate the adjustment of the sutures, used them of two different colors, passing sutures of the same color on the same side of the cleft, so that one color indicates those to be withdrawn and the other those to be retained. In his remarks after the operation, he referred to the use of chloroform in these operations, and said that the danger of giving much was owing to the loss of sensitiveness of the upper part of the larynx, and the consequent trickling of blood down the trachea and bronchi without corresponding reflex attempts to prevent it. The fact that even after the administration of chloroform some irritation was produced in the larynx and about the palate by the blood, was the cause of the restlessness shown by the patient, but this diminished during the later stage of the operation, when the parts became more tolerant of the cause of excitement in them.—*Medical Times and Gazette.*

ARTICLE VIII.

Theory of Nervous Force.

In the *Medical and Surgical Reporter* are published the conclusions of Dr. Charles B. Radcliffe:

"Instead of regarding the state of action in nerve and muscle as a manifestation of vitality, there is, indeed, reason to believe that it must be brought under the dominion of physical law in order to be intelligible, and that a different meaning, also based upon pure physics, must be attached to the state of rest.

There is reason to believe that all kinds of electricity act on nerve and muscle by way of charge and discharge, the charge antagonizing, the discharge permitting the state of action.

There is reason to believe that the blood acts upon nerve and muscle, not by causing the state of action, but by antagonizing it.

There is reason to believe that nervous influences act upon nerve and muscle, not by causing the state of action, but by antagonizing it.

The whole case is simple enough. It would seem indeed, 1. That the sheaths of the fibres in nerve and muscle are capable of being charged like Leyden jars, and that during the state of rest they are so charged. 2. That the sheaths of the fibres are highly elastic. 3. That the fibres of muscles are elongated during the state of rest, by the charge with which their sheaths are charged, the mutual attraction of the two opposite electricities disposed Leyden-jar-wise upon two surfaces of the sheaths, compressing the elastic substance of the sheaths, and so causing elongation of the fibre in proportion to the amount of the charge. 4. That the muscular fibres contract when the state of rest changes for that of action, because the charge which causes the state of elongation during rest is then discharged, and because this discharge leaves the fibres free to return by virtue of their elasticity, simply from the state of elongation in which they had been previously kept by the charge. The degree of contraction is proportional to the degree of elongation previously existing.

That the fibres of nerve are not affected in the same way as the fibres of muscle by the charge and discharge of electricity, because the sheaths of the fibres may be wanting in the requisite degree of elasticity. 5. That the blood antagonizes the state of action in nerve and muscle by helping to keep up the natural electrical charge which antagonizes action. 6. That nervous influences antagonize the state of action in nerve and muscle, by helping to keep up the natural electric charge which antagonizes action. 7. That diminished efflux of blood to certain nerve centres leads to successive action in nerve and muscle, by disturbing the electric equilibrium of the nervous system, which is maintained during the state of rest, this disturbance causing a partial reversal in the relative position of the two electricities with which the sheaths of the fibres are charged, and so necessitating the discharge which is the basis of action."

ARTICLE IX.

Dr. Arthur's System of Treatment for the Prevention of Decay of the Teeth.

BY O. A. JARVIS, D. D. S., NEW YORK.

It must be a real pleasure to every right-minded dentist to receive any creditable addition to dental literature. Its paucity is felt and deplored. Yet it is well not to be in haste to add text, standard, or popular works on dentistry until principles are better understood and practice better defined.

We question the wisdom of advocating with so much boldness a practice so at variance with nature, and receiving such doubtful support from results in practice.

Whatever may be the influence of this little book upon the practice of the profession, it is certainly calculated to weaken the confidence of the people in dentists and dental operations.

Let us examine the main idea of this little book,—viz., artificial separation for the prevention of decay. This idea has been forced upon the consideration of every man who has ever filled teeth, or tried to save them by any means; and it has been resorted to in every man's practice to the fullest extent allowed by judgment and experience. We will study this book with all diligence to learn how to do better. We are thankful for the book, for what it teaches, —especially for what it suggests. Some will find a ready apology for their own shortcomings in the general failure which the author affirms; others will be stirred to deeper thought and more earnest efforts for a fuller measure of success.

The proposed plan is not confined to certain forms or classes of teeth, but is put forward as a "new method,"—a substitute for filling.

The first point I make is, that the separation answers the desired end only in so far as it renders the surfaces self-cleansing; that is, the food, in the act of mastication, enters the first V, which is naturally formed by the rounded margins of the grinding surfaces—and by Prof. Arthur's plan is artificially enlarged—is forced past the double apex into the second V, at the cervix, where it lays in contact with the gum. If the space will admit sufficient food, of a somewhat solid character, it will cause pain in the gum, thus necessitating change, which generally secures safety. Then if we add a third V, with apex pointing to the buccal surface, it would seem impossible to any chewing on those teeth, or even to take fluid in the mouth, without changing the contents of those spaces. This is a very common type, such as are represented by Fig. 1. But Prof. Arthur does not leave them even here, without the point of bearing unchanged, but requires that the separation be "thorough, free from the grinding surface to the gum. "p. 155.

Let us merely name some of the objections to this treatment:

First. It is unnatural,—it does not harmonize with the plan of the original artist; and progressive dentists are increasingly inclined to follow the teachings and preserve the types nature gives.

The first or outer V, in its normal condition, is small or restricted, apparently for the purpose of *preventing* the passage of food between the teeth, as well as to furnish the greater extent of grinding surface. Prof. Arthur's proposition is to enlarge that V so that the food, pick, tape, etc., *may* pass freely.

Second. The point of contact in the normal condition of the teeth is almost invariably *single*, and generally more limited in extent than can be secured by artificial separation. The point of bearing should never be removed, or, if removed, it should be restored. Go all around it; restrict or lessen it as much as you please; but if removed, it is an irretriveable injury—there can be no possible compensation for it.

Third. The injury to the gums and process by the pressure of food in the act of mastication, and the violent pressing of the tooth in one direction, and the next instant in the opposite direction; the present pain and resulting periodontitis and probable absorption; the annoyance to the tongue by the artificial angles.

There is positively no weight in the testimony of a few patients to the effect that they experience no inconvenience: we have not yet to learn that people will get used to a mouthful of broken and decayed teeth. But if we are going to appeal to the people for their verdict, we have it already in the universal horror and undying dread with which they have regarded the practice for the past thirty years. It is often alluded to in this book as a prejudice. It is testimony, as sound as the other.

Fourth. The teeth generally do, and may be expected to, shift their position, unless prevented by antagonists. The movement will be in a direction opposite to the slope upon the grinding surface doing the most work. Sometimes it will be lateral, sometimes rotary; often both. In fact, a tooth will not stand alone, independent of companions or antagonists, when subjected to lateral pressure.

It would not seem necessary to inquire if the separation can be maintained when made at the early age required for the prevention of caries, before the teeth had taken their position. See Figs. 28 and 33.

When after separation they come together again, as Prof. Arthur says they "not unfrequently do," (p. 98), and "they are liable to," (p. 156), we are almost sure to have a broader surface in contact, perhaps more than one point, and certainly a narrower space at the cervix, the very place where the space is most needed, and where the very act of coming together produces pressure and consequent absorption,—the difficulties of inspection being thus immeasurably increased. But our author says "cut again," (pp. 98 and 156). Why not as well say "fill again," or repair? If timely, it would be as easy and as sure.

If there is any complication of difficulties to be dreaded, it is such as arises from separations and shifting.

Fifth. Another but slight objection is the fact that exposed dentine always discolors.

Sixth. It is unnecessary; there are two plans, either of which is better. First, the care on the part of the dentist and the patient which Prof. Arthur requires, (p. 159), if timely applied, would probably secure the desired results; second, there is a better plan of separation. Judging from experience in my own mouth and in practice, if my teeth were to be treated by cutting away anywhere for the prevention or arrest of decay, I would prefer it should be done by enlarging the inner or second V, leaving the grinding surfaces intact. This plan would give space where most needed; would more readily reach the point where decay commences; need not endanger the pulp; the surfaces could be as easily inspected; there would be no change of position; there would be no angles and less cut surface; it can be easier done; there would be no inconvenience in mastication; properly done, the gum would probably not change its relation; and finally, it would be quite improbable that so large a quantity of bread and potatoes would be wasted in the mouth of any patient who had passed under the hands of a faithful dentist. This I propose and practice as a substitute for Prof. Arthur's plan for *prevention* and the removal of incipient proximate decay. But let us try again the filling plan, pronounced by Prof. Arthur a failure, as applied to the proximate surfaces of the bicuspids and molars.

Imperfect operations are a more prolific source of failure than all others combined. This a fact which can be demonstrated. To enter into the details at present would be too tedious.

Remove one of those fillings in a mass where decay has recurred, and examine it with a glass. In one case it is imperfect preparation; in another, imperfect packing; in another, injury to the walls in packing; in another, it is not properly finished. Now, all these imperfections can be avoided, and should be, rather than resort to the new method.

Another source of failure of fillings in this latitude, still more prolific than "uncleanness," is a lack of full and complete restoration of the crowns, even in what are called "contour fillings." The space at the cervix is contracted by the teeth coming together, producing soreness, and, by reason of the tenderness of parts and the lessened space, *preventing* cleanliness. In this manner we incur to some extent the evils of the "cut away" plan. We establish a set of circumstances calculated to result in decay; whereas, if there is full restoration, there is less probability of decay than in the original condition, for the simple reason that the point where it has occurred, and generally does occur is now occupied by an undecaying substance. It did not in that particular case originally, and does not generally, commence to decay at any part of the line now occupied by the margin of the filling. The simple fact that decay recurs is sufficient evidence of an imperfect operation, or the result of the cut-away plan and coming together again.

But Prof. Arthur requires even for the success of his plan that the tape must be used "several times each day" (p. 159) and "carefully examined at short intervals" (p. 157). Have not we reason to believe that with *such* treatment decay would *never* occur, even on the proximate surfaces of bicuspids and molars?

On page 95 we are told that it not the "slightest disfiguration" to cut away the incisors. A clerical friend, whose eye lit upon the proposition, remarked, "What a pity the Lord did not know about that in the first place."

These teeth are provided by nature with a thicker, heavier portion of enamel, and especially the linguo-proximate portion, often somewhat in the form of a scroll, with more or less of a depression in the centre, or between the two enlarged portions of enamel. The distance between these two extreme points is as great or greater than between the two points immediately anterior, often a little depressed, being the exact points where decay is expected to make its attack. Can we claim that there is no deformity when this mass of enamel is removed, which was placed at this particular point to sustain the cutting edges—which are very likely to be already checked, and so often break away—and to furnish a triturating surface in occlusion with the points and anterior surfaces of the inferior incisors, as important as the grinding surfaces of the molars? When the natural relations and conditions are changed it *is* a deformity, and the cutting away of the front teeth at these points is a deformity both seen and felt. The front teeth, as well as the bicuspids and molars, are formed to protect the gums. The gums will bear to be wounded but will not bear an unnatural, continued pressure.

On page 169 the author says, "What I propose is the separation of teeth closely in contact, which are of such frail character, and are exposed to such destructive influences, that their decay is inevitable, or has already occurred. This proposition may be met in this manner: 1. The care the author *requires in any case* as a *sine qua non*, will very generally answer the saving purpose without any operation. 2. The teeth are never in actual contact except at a small point—the most projecting part of the crown. 3. It is folly to remove the only points of contact when contact is necessary and inevitable. 4. Lessening the point of contact, while enlarging the space already too much at the cervix (the second V), will give all the advantage which can be *secured* by any means.

But our author speaks of leaving projecting dentine near the gum (p. 158). How are you going to get projecting dentine near the gum, and what will be the shape of your tooth by the time you get it? Where is the gum and the process by the time the dentine of the two teeth come in contact?

Again, how certain are we when we determine "that decay is inevitable." How often do we see cases where the "destructive influences" have been removed and the "frail character" no longer appears.

I have endeavored to state the reasons of my conviction, based upon theory and practice, that the plan of artificial separation of the teeth as proposed in this book is not necessary; is not the best treatment; and is a failure—*Dental Cosmos.*

ARTICLE X.

Soluble Glass and its Applications.

The recent epidemic of fires, if we may be allowed the expression, has in many cases called the attention of the public to this remarkable compound, and stimulated inquiry as to its uses and the methods of applying it. Although it has been known for many years, it has thus far failed to come into very general use, partly because the public have expected more from it than was reasonable, and have consequently been disappointed in practice; and partly because the extravagant praises of some of its friends have placed it in the same category as quack medicines and other articles which are said to cure all diseases and remove all difficulties, and hence are regarded by the more sensible portion of the community as not being good for anything. In reality, however, it does possess the most valuable properties, and may be used to great advantage under a great variety of circumstance.

Soluble glass is simply a variety of purely alkaline glass in which the alkali is in excess. Ordinary window-glass is a compound of silica with potash or soda, and in some cases lime; oxide of lead added to the compound of silica and potash or soda gives flint glass; Bohemian glass is a compound of silica, soda and lime; and the coarse glass used for bottles contains much more iron and some alumina, which is the base of clay. According to the quantity of alkali employed, the glass will be soluble or insoluble; it being understood that all glass is soluble to a certain extent. Old window-panes that have been exposed to the elements for years, are in general so corroded that their surfaces are no longer perfectly transparent; and common flint glass, when finely powdered, dissolves in water to such an extent that its presence can be detected by the least delicate reagents. But when the proportion of alkali is largely increased, and especially when the compound consists of pure alkali and pure silica, we obtain a glass which dissolves entirely in water, and which may be applied as an incombustible varnish to wooden articles, or used as a cement or as a coating for brick and stone. Soluble glass was first brought into practical use by Prof. Fuchs, of Munich, in Bavaria, in the year 1823, and hence is frequently known as Fuch's soluble glass. At first it was prepared by fusing ten parts of pearlashes, fifteen parts of powdered quartz, and one part of charcoal together, and pulverizing the mass, which was then added in small portions at a time to boiling water until the whole was dissolved. The solution was then evaporated to a jelly-like consistency, when it was ready for market. More recently it has been found that certain varieties of silica are soluble in a boiling solution of caustic soda; and also that, when the temperature of an alkaline solution is greatly increased, which may be done by boiling it in a close vessel under great pressure, flints and other hard varieties of silica dissolve rapidly. It is in this way, we believe, that Ransome prepares the soluble glass used in the manufacture of his famous artificial stone. It is therefore obvious, from a consideration of these methods, that soluble glass is readily prepared; and, as the materials are comparatively cheap, there is no reason why it should not come into very extensive use, provided it should prove really valuable in the arts.

The first notable application of soluble glass was to the theatre of Munich, where it was used for the purpose of preventing the recurrence of a fearful disaster by fire. Before trusting to its protective qualities, however, a test was made of its powers, and a small building coated with soluble glass was erected in one of the public squares, and attempts made to fire it at several points, by placing small heaps of light wood in contact with it and setting those heaps on fire. Of course, where the flames came in contact with the building, the wood of which it was made was charred, and to a certain extent destroyed. But in no case did the building itself take fire or burn; and the test was deemed so satisfactory that the theatre was immediately coated in such a way as to be made fireproof. Since that time, it has been applied in many cases, and always with success whenever the application was made with a moderate amount of skill. That it might be used extensively for preventing fires, and for adding to the durability of all wooden structures, is unquestionable; and therefore a few hints as to the best methods of using it may not be out of place. These hints we are enabled to give more readily, since the whole subject was carefully investigated by the celebrated French chemist, Dumas, who has, in his "Traite de Chimie applique aux Arts," detailed very fully the results at which he arrived, He found that, although soluble glass is of itself a good preservative from fire, it fulfils the object better when it is mixed with another incombustible body in powder. Clay, whiting, calcined bones, powdered glass, etc., may all be employed for the purpose, though it is difficult to decide which of them is the best. A mixture of clay and whiting appears to be better than either used separately.

Flint glass, and the crude soluble glass as it comes from the furnace, are excellent additions. The powdered soluble glass ought to be exposed to the air until it has attracted some moisture; after which, if it be mixed with the solution and applied to any body whatever, it will in a short time form a coating as hard as stone, which, if the glass be of good quality, is unalterable by exposure, and resists fire admirably. When soluble glass is used for rendering wood fireproof or indestructible, it is always well to apply, in the first place, a coating of the pure glass. The pores are in this way filled up; while, if we use a thick and paintlike mixture of the solution with some powder, the liquid does not penetrate beneath the surface, and much of the effect is lost. When properly prepared, soluble glass, after being dried by exposure to the air, suffers a change which renders it incapable of being washed off. The alkali not being completely neutralized in this form of glass, it is difficult to apply oil paint to woodwork that has been treated with it; but this objection might be remedied by treating the prepared surface, when dry, with a weak solution of acid.—*Am. Jour. Pharm.*

ARTICLE XI.

Xylol, the New Remedy for Small Pox.

BY C. R. C. TICHBORNE, F.C.S., M.R.I.A.

Xylol, xylene, or ethyl-benzine, as it has been respectively called, is one of a homologous series of hydrocarbons, of which the well known benzine and toluene form the two first. These hydrocarbons, are all formed from coal-tar-naptha. Xylol was first procured by Hugo Muller, but its nitro-compound had previously been discovered by Warren De la Rue, in 1856. Coal-tar-naphtha is submitted to fractional distillation until the part which boils at 141° is separated; this is submitted to the action of fuming sulphuric acid, which dissolves the xylol and leaves the other hydrocarbons. The xylol is then separated by distillation from this mixture.

Xylol is said to have been used by Dr. Zuelzer, the Senior Physician at the Charité Hospital at Berlin, with great success in cases of small-pox. The theory of its action would appear to be that xylol is taken up by the blood, and acts as a disinfectant. The vapor seems to the writer to possess faint and not very well marked, anæsthetic properties; this may be due to the presence of a small quantity of benzol, or the other hydrocarbons. The antispeptic properties of this group of compounds are well known, and thus, probably, the specific action of this one. The boiling point is variously stated at 139° to 140°. The specimens examined by the writer generally commenced to boil at about 135° C the specific gravity was ·866.

It is said that the purity of xylol is of importance, but unfortunately there is no very ready method by which the ordinary practitioner might detect its purity. It should be soluble in fuming sulphuric acid, but it is not soluble in the ordinary sulphuric acid of the Pharmacopœia.

It has a faint odor something like benzol, and an aromatic taste. The doses are three to five drops for children; ten to fifteen drops for adults, every hour to every three hours. It is quite harmless in reasonable doses. In Berlin it is given in capsules. As it is very insoluble the best method of giving it would be in an emulsion of almonds. When once assimilated it is rapidly oxidized in the body, this fact being demonstrated by the production of a peculiar odor in the urine, which, however, is quite distinct from xylol itself.—*Med. Press and Circular.*

MONTHLY SUMMARY.

Painless Extraction of Teeth.—Dr. A. C. Castle, (*Dental Cosmos*) observes that he has for thirty years adopted the plan of obtunding or benumbing the extremities of the temporal nerves for painless extraction of teeth from their sockets, with complete success, never having used or countenanced the exhibition of chloroform, ether, or nitrous oxide gas for this minor surgical operation. The benumbing, or mechanical anæsthesia, of the temporal branches of nerves, obtunds the whole nerve to a sufficient extent to allow the teeth to be removed, with sensation so slight that, if not attending a special surgical operation, it would scarcely be noticed by the patient.

One of two modes may be adopted. By application of ice to the temples which is somewhat distressing, the sensation of cold striking deeply. The other, to which he gives the preference, is done by an assistant, with each of his middle fingers pressing with persistent firmness into the *fossa* or hollow behind the ridge of the temporal bone, which forms the external bone circle orbit of the eye, Pressure for one minute is all that is necessary. The practice is as simple as it is harmless, and leaves no after unpleasant sensation to annoy the patient. It is an instinctive method often adopted by people themselves, who press their temples to relieve themselves temporarily of the acute paroxysms of nervous headache. This temporary pressure, with sufficient force, is all that is required to remove teeth painlessly.

External Application of Chloral Hydrate.—Dr. Charles S. Strother, Barnesville, Ga., (*Atlanta Med. and Surg. Journal*), calls the attention of the profession to the external application of hydrate of chloral as a powerful and speedy counter-irritant, and, to a considerable extent, a local anodyne. The idea first suggested itself to Dr. McDowell in 1870, when he accidentally applied a small portion of chloral to his own face, instantly producing a burning sensation. It has been used with good results in facial neuralgia, pleurodynia, rheumatism, gastralgia, in uterine and ovarian pains, in advanced phthisis, and in relieving persistent nausea and vomiting. The mode of applying the chloral is as follows;—Place ℈ i. in a plate or a saucer. add water to made a saturated solution, and then apply with the tips of the fingers, with slight friction, over a space as large as the palm, or *pro re nata.* Should the burning be too intense, the parts may be sponged off in a few minutes with a cloth wrung out of warm water; and then apply glycerine with a little spirits camphor, or the glycerine alone, olive oil, or sweet cream.—*Med. News.*

Treatment of Facial and Dental Neuralgia.—This method consists in turning into the meatus auditorious from four to ten drops (according to the age and sensibility of the patient) of the following fluid; then to close the opening of the ear by means of a little cotton, and to cause the patient to hold the head inclined for some minutes to the side opposite to the seat of the pain, so that the liquid may remain in the bottom of the ear. This preparation is thus made:

℞—Ext. opii......................
Ext. belladonna ....
Ext. stramonia............ .., *aa*, parts j.
Aq. pruni virg............. . parts xij.
Solve et cola.

Although this preparation may be only extemporaneous, it may nevertheless be preserved, if care is taken to keep it cool, by pouring on its surface from two to four drops of sweet almond oil.

It is very rare, with the use of this liquid, that relief is not obtained in a few minutes, and the patient asleep in half an hour, whatever may have been the severity of the pains, and that without having been in the least danger. Absorption takes place almost as rapidly as from a denuded surface, and it is, therefore, unnecessary to blister the patient when we wish to use narcotics, since they act almost as rapidly by the auditory passage.

If it should happen that at the end of eight or ten minutes, the pain does not yield to the remedy—which sometimes happens when the quantity used has been too small, or when we have to treat a neuralgia which has already required the use of narcotics in any way—it is necessary to use the second dose, at least equal to the first, but in the opposite case, in order to obtain, promptly that relief which is only too frequently momentary, of facial neuralgias of long standing.—*Ibid.*—*Nashville Med. and Surg. Journal,*

A Novel Surgical Operation was recently performed by a San Francisco physician. The patient had been shot. The bullet entered the right side, a little above the hip, and in probing the wound the surgeon discovered where the bullet lay. He was compelled to enlarge the orifice of the wound in order to introduce the forceps, when the wounded man, who was under the influence of liquor, struck him a powerful blow on the side of the head, which caused him to fall to the floor. He then ran away, and when the doctor recovered himself, he found the forceps in one corner of the room and near the instrument was the bullet, which had been extracted by the force of the blow. The doctor says that as a surgical operation it was a complete success, but still he is not partial to the method.—*Medical and Surgical Reporter.*

Chloral for Toothache.—Dr Page, in the *British Med. Journal,* recommends chloral hydrate as a local application in cases of toothache. A few grains of the solid hydrate introduced into the cavity of the tooth upon the point of a quill speedily dissolves there; and in the course of a few minutes, during which a not unpleasant warm sensation is experienced, the pain is either deadened, or more often effectually allayed. A second or third application may be resorted to if necessary.

Cell or Skin Grafting.—Having had some experience in this exceedingly interesting practice, and having carried it farther than any of whose experiments I have read, I propose to give my "experience," or rather the results of my observations.

I have practised three methods: 1st, that of snipping off portions of true skin with the epithelial layer; 2nd, scraping off the epithelial layer; 3d, removing sheets of detached portions of epithelium, and transplanting these to the surface of ulcers not inclined to heal.

The first method is more tedious requires more care, and is less satisfactory than either of the others. As recommended, I took bits of skin about half the size of canary seeds, and these were carefully placed with the cut surface on the clean surface of the ulcer. To accomplish this, I take a fine cambric needle, fix in a handle, pass it through as small a piece of skin as I can, and then pass a sharp knife, with a sawing motion, under the needle, with the side of the knife closely pressing the needle, so as to cut the skin at the point where the deeper surface of the needle is in contact with in. I then lay the needle on the ulcer (with the graft upon it) in the same relative position it was upon the skin, dip the point of my knife in water, and placing its back at right angles upon the needles, draw the needle out from eye to point, thus sweeping the graft from the needle, and leaving it on the ulcerated surface. Then I apply a pretty thick layer of simple cerate on lint, and cover the surface with it. A pad of cotton wool, and finally a bandage smoothly applied, complete the process. The dressing is not changed for a week. At the end of this time it is probable no trace of the grafts can be recognized; in one week more they will be apparent, and at the end of a month they will be found as large as the fingernail.—*St. Louis Medical and Surgical Journal.*

A New Styptic.—Collodion 100 parts; carbolic acid, 10 parts; tannin (Pelouse's), 5 parts; benzoic acid (from gum), 5 parts. Mix the ingredients in the order above written, and agitate solutian is effected. This preparation has a brown color, and leaves on evaporation a strong adherent pellicle. It instantly coagulates blood, forming a consistent clot, and a wound rapidly cicatrizes under its protection.—*Med. and Surg. Journal.*

White Gutta-Percha.—The *Journal of Applied Chemistry* gives the following method of preparing this, for dentists' use and for other purposes. Four ounces of pure gutta-percha are digested with five pounds of methyl-chloroform until the solution is thin enough to pass through filtering paper. It is then filtered (an additional pound of chloroform will facilitate this), and should then be clear and nearly colorless. Alcohol is now added in sufficient quantity to precipitate the gutta-percha in a voluminous white mass, which is washed with alcohol, pressed in a cloth, and dried in the air. It must finally be boiled in water in a porcelain vessel for half an hour, and while still hot rolled into sticks. The chloroform can be separated from the alcohol by adding water, and the alcohol recovered by distillation.

Styptic Cotton.—In the September number of the London *Pharmaceutical Journal* for 1870 there is an extract from the *Schwabischer Merkur*, written by Dr. Ehrle, of Isny, in which he gives the following formula for the preparation of the cotton :

"Take cotton of the best quality ; boil in a weak solution of soda (four per cent.) about an hour ; wash with cold water ; press out and dry. Then steep the cotton in a solution of the chloride of iron (diluted one third) ; press and air dry ; after which pick to pieces."

This prepared cotton is of a yellowish brown color, and requires to be protected from the air, as it absorbs moisture very rapidly, owing to the deliquescent character of the iron-salt which it contains. Having prepared some for experiment a few months ago, after using it for a time it occurred to me that if the sol. ferri subsulph. were used in its preparation instead of the sol. ferri chlor., a superior article would be made, inasmuch as the cotton would not then absorb moisture, and would not need the care to protect it which this did. I made some accordingly, and found it quite as efficient as a styptic, and entirely free from the objection referred to.

By the sample which I herewith send you, it will be seen that it is of a light straw color and perfectly dry to the touch. It is easily carried and ever ready for use. It acts chemically and mechanically—chemically through the iron-salt which it contains, and mechanically by means of its bulk and closely pressed fibres.

It has been in constant use at the St. Mary's Hospital for some months, and is looked upon by the surgeons there as a valuable addition to their armamentarium. The many instances in which its valuable aid may be called upon will suggest themselves to the surgeon and obstetricion, and need not, therefore, be specified here. While there is nothing new in presenting either of these iron-salts as a styptic, yet I think the profession indebted to Dr. Ehrle for the idea of putting them in a much more available and efficient form.—*Dr. James Cummiskey in Med. Times.*

EDITORIAL DEPARTMENT.

The Cumming's Patent.—At a meeting of the Executive Committee of New York and Brooklyn, March 21st, 1872, to hear the report of the delegates to Washington, the following resolutions were adopted; and it was desired that copies should be sent to the dental journals for publication, as a tribute eminently due to the gentlemen mentioned:

Resolved, That the energy, ability, and integrity which have been shown by our counsel, Gen. John A. Foster, and Samuel J. Glassey, Esq., in the preparation and presentation of the case of B. E. Gardner, against the Cumming's patent, just argued in the U. S. Supreme Court at Washington, entitles them to this recognition of their services by the Committee, and merit this public acknowledgment of their untiring labor, and skilful management of the case.

Resolved, That the Committee recognize their obligations to the gentlemen of the Baltimore and Washington Committees, and to their counsel, Orville Horwitz, Esq., for the efficient support they have so promptly and cheerfully given to the measures which it is hoped will result in our speedy and final success.

C. A. Woodward, *Chairman.*
W. A. Bronson, *Secretary.*

Foil Cylinders.—Dr. H. S. Chase in the *Missouri Dental Journal*, speaks as follows of Williams' prepared cylinders now for sale at the depots: "Williams, of New York, has introduced to the profession, gold cylinders of different sizes, made of soft foil, but which become adhesive by *heating*. These cylinders are intended for "cylinder filling" according to the usual manipulation of gold cylinders. For regular cylinder fillings, I prefer to make my cylinders of Abbey's foil, and wind them pretty *tightly*, so as to have as much gold as possible in a small diameter. I find Williams' cylinders are too loosely wound for my purpose in this direction ; on the other hand I am delighted to find that I can use them as *adhesive pellets.* I have made quite a number of contour plugs of them ; they adhere firmly and pack smoothly. They should be laid flat, so as to mallet against their sides, instead of their ends. Much time is saved in using them, as there is more gold in the same bulk than in a twisted pellet. They are cut in some peculiar way, so that their ends are not *condensed,* as when cut by scissors.

They are made of five different numbers. Number ½ is made by rolling up a half sheet of No. 4 gold foil. as small in diameter as No 17, of the wire gauge, and about three times as long.

No. 1 is made, by using in the same way, one whole sheet of No. 4 gold foil.

No. 2, by using in the same manner, two whole sheets, laid together.

No. 3, by using three sheets laid together.

No. 4, by using four sheets laid together.

The *diameter* of No. 1, is about thirteen of the gauge : that of No. 2, about 10 of the gauge ; that of No. 3, about 9 ; and No. 4, about 8 of the gauge. Their *lengths* vary in the same numbers.

This preparation of gold costs 25 cents more per ⅛ of an ounce, but as there is a saving in respect of *waste,* it is quite as economical, and, perhaps, more so than gold foil simply. It is put up in small boxes.

There now is quite a puff for these cylinders. but it is not a paid puff. I bought and paid for the ones I have used, and I have written this for the benefit of the profession, and not for Mr. Williams, though I heartily thank him for having made and put into market so *convenient* an article."

Death from Nitrous Oxide Gas.—Several weeks ago Mrs. O'Shaughnessy died in the office of a dental practitioner, Dr. Newbrough, in West Thirty-fourth street, New York city, while under the influence of nitrous oxide gas, administered for the purpose of having teeth extracted without pain.

It was at first published in the daily papers that the verdict of the coroner's jury was death from congestion of the lungs superinduced by the gas. A later account states that a large number of dentists and others were present at the inquest, after much testimony on the several properties of nitrous oxide, a verdict was given of death from asphyxia, and that the jury condemned the manner in which the gas is generally manufactured. and the careless manner in which it is administered. We have at this time no further particulars.

Death from Alveolar Hemorrhage.—In New York city, on the 26th of February last, a German named Charles Nollman, had five teeth extracted. On leaving the dental office the gums were bleeding profusely, and all attempts to arrest the hemorrhage were in vain. On Wednesday, Thursday, and Friday, the bleeding continued, and although every effort was made to save the unfortunate man's life by Dr. Chabert, a prominent physician of Hoboken, who applied styptics, and did all that medical science could suggest. he became weaker and weaker, and at last expired from inanition. A few hours before his death, two friends of the patient allowed themselves to be bled, each to the extent of eight ounces, for the purpose of seeing if Nollman's life could be saved by the transfusion of blood; but the unfortunate patient was too far gone, being then in a dying condition. A hemorrhagic diathesis was clearly present in this case.

OBITUARY.

DR. B. T. WHITNEY, well known from his connection with the Vulcanizer manufacture, died in Buffalo, N. Y., Jan. 18, 1872, aged 59 years.

"His influence for good was felt in whatever circle he moved, whether professional, religious or social. He was prominent and indefatigable in all movements looking towards the progress of dental science in his State, and considered it a duty to be present at all meetings held for that object within any reasonable distance, To his efforts especially are the dentists of New York indebted for the present State law relating to dentistry.

He successively held the office of President of the Buffalo Dental Association, the Dental Association of Western New York, the Eighth District Dental Society, and the Dental Society of the State of New York, all of which he very ably filled.

Dr. Whitney, after he relinquished his practice, retained his connection with his medical brethren, and always evinced a warm interest in matters relating to general medicine by being present at their meetings. He was a member of the Erie County Medical Society.

In his intercourse with his fellow men he was very genial and friendly, and was governed by the strictest principles of honesty and integrity. In short he was everywhere esteemed as the true type of a christian gentleman."

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